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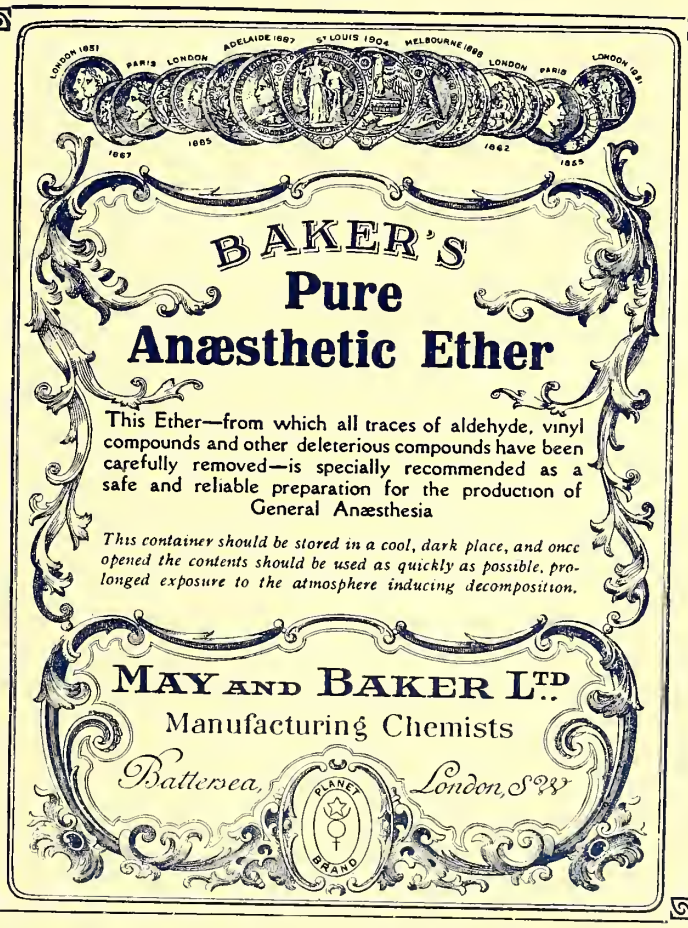

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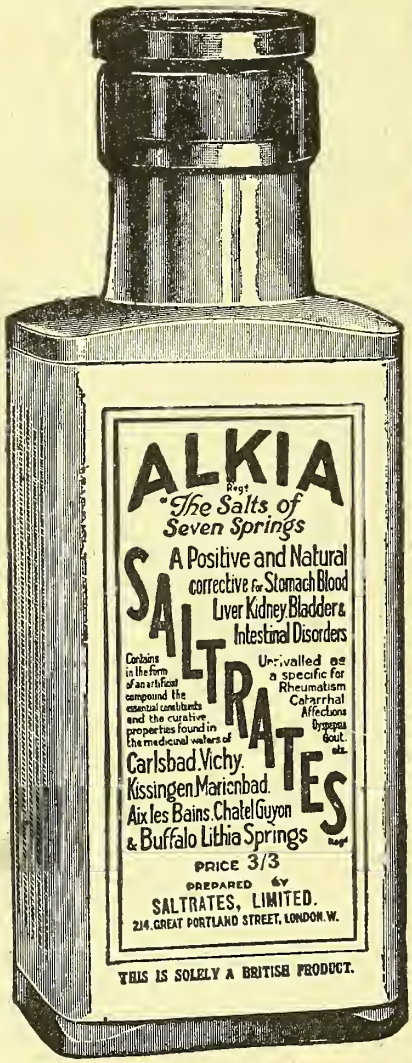

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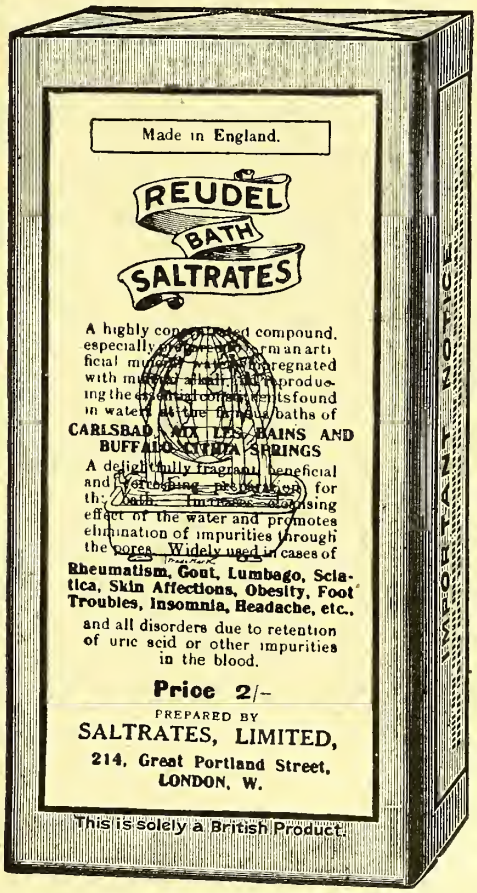

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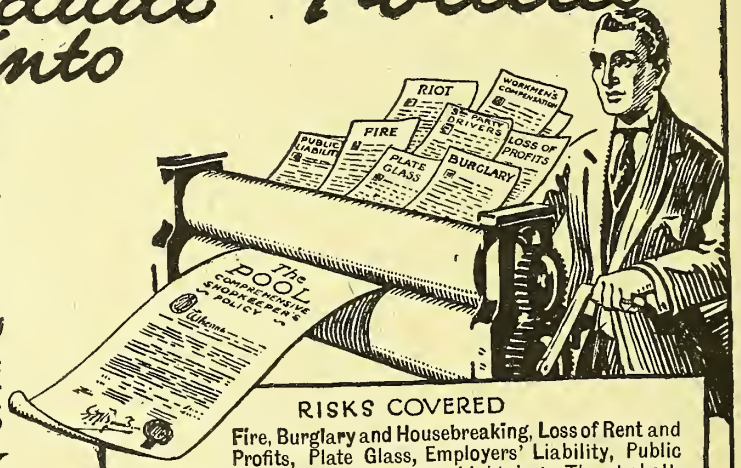

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FAR too many chemists do not realise what an important factor it is to always push the same lines. It is no unusual sight to see a chemist stocking, let us say, Brilliantines of half-a-dozen makers, but pushing none in particular. A customer, on coming back for the same line, finds the chemist has run out of that particular brand, but has several other makes of the same article, just as good; result—a dissatisfied customer. This is fatal. Having made up your mind that such and such a line is one that will help to build up your business, push that line for all it is worth; make it your own speciality, and customers will always be sure of having the same article. That means

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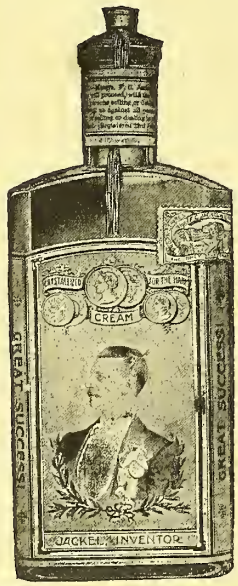
"Jackel's Cream"

(without Grease)
for THE HAIR
Sold everywhere
Established 1883.



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1/9 CREAM 2/6
Trade Mark attached to each bottle.

"Jackel's Cream" fixes the hair in any desired position; is unexcelled as a dressing and does not soil the headware. It removes Scurf and Dandruff, keeps the scalp healthy, and promotes the natural growth of the hair while maintaining its softness and brilliancy.

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Paste, Powder, Fluid

CATTLE MEDICINES
PAINT STICKS for marking Sheep, Pigs, Cattle, &c.

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Dips packed in Chemist's name if required.

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Powder and Liquid.
New rail regulations have materially altered the conveyance of Weed Killer. We have arranged to meet the requirements. Write to us for particulars.

Please write for Lists, Terms, &c.

The Chemist's Favourite Brand.
Easiest to sell. Sales through Agents.

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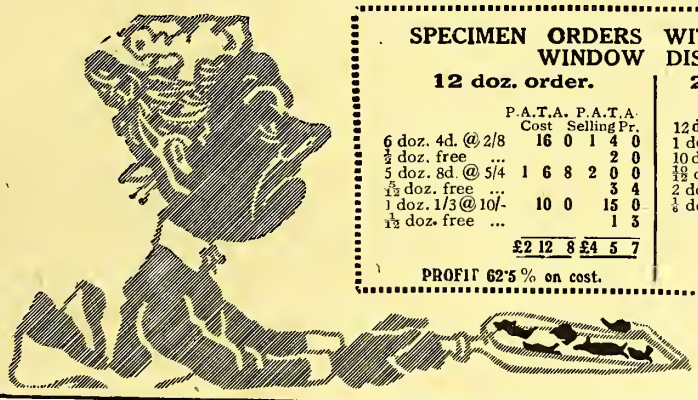

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10 doz. 8d. @ 5/4	2 13 4	4 0 0
$\frac{10}{12}$ doz. free ...		6 8
2 doz. 1/3 @ 10/-	1 0 0	1 10 0
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Price 2/9

Wholesale:
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PER DOZEN.

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FOR GREY HAIR
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PER DOZEN.

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AYRTON'S WEEKLY PAGE 15

LARGE JUICY LEMONS

from Italy's choicest groves, ripened to perfection by the sun's rays, yield the fragrant oil from which is manufactured AYRTON'S LEMONADE TABLETS.

A tablet dropped in a tumbler of cold water quickly dissolves with brisk effervescence—in a few moments a fully-sweetened, sparkling, thirst-quenching lemonade is ready to serve—a glass of bubbling golden deliciousness. The ideal lemonade for parties, socials, picnics, etc. So easy to prepare and no sugar required.

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Manufacturing Chemists **Hanover Street, LIVERPOOL**

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LADIES' DRESSING COMBS.

No.		Size.	Per Doz.
103	Black celluloid	7 × 1½″	6/6
171	White ,, ...	7 × 1½″	6/6
102	Black ,, ...	8 × 1¾″	7/6
101	White ,, ...	8 × 1¾″	7/6
121	Black ,, ...	7½ × 1¼″	8/6
222	White ,, ...	7¼ × 1½″	8/6
118	Black vulcanite	8 × 1¾″	10/0
116	Shell celluloid	7½ × 1¼″	12/0
166	White ,, ...	7½ × 1½″	12/0
187	Black ,, ...	7½ × 1½″	15/0
195	,, vulcanite	8 × 1¾″	15/0
107	,, celluloid	8 × 1¾″	20/0
106	White ,, ...	8 × 1¼″	24/0

GENTS' COMBS.

165	Black celluloid	6½ × 7/8″	6/6
144	Black vulcanite	7 × 1″	7/6
143	Black ,, stout ...	7 × 1″	8/6
203	Horn	7 × 7/8″	9/6

LADIES' RAKE COMBS.

No.		Size.	Per Doz.
223	Black celluloid	8 × ¾″	8/0
224	White ,, ...	8 × 1¾″	8/0
167	White ,, ...	6 × 1¼″	8/6
119	Black ,, ...	8 × 1½″	10/6
115	White celluloid	7½ × 1¾″	15/0
117	,, ,, ...	7½ × 1½″	18/0
174	,, ,, ...	8 × 1¾″	24/0

LADIES' HANDLE COMBS.

104	Black celluloid	8 × 1″	15/0
105	White ,, ...	8 × 1″	15/0
216	Black vulcanite	8½ × 1¾″	24/0

SMALL TOOTH COMBS.

239	White celluloid	3 × 1¾″	4/6
151	,, ,, ...	3½ × 1⅞″	5/6
192	Black vulcanite	3 × 1¾″	7/6
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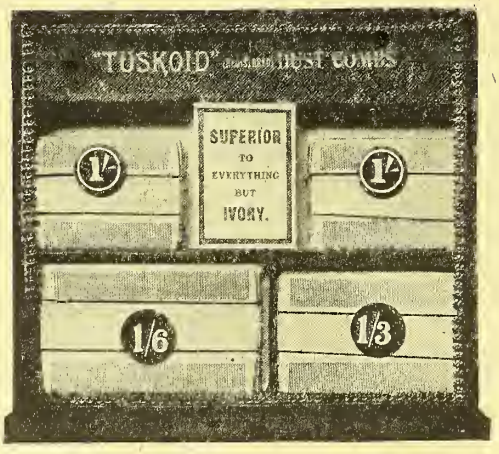
91 & 92 GREAT SAFFRON HILL——LONDON, E.C.1.

FREE with 3 doz. Combs



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5% Discount. Cash with Order. Carriage Paid.

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HAIR BRUSHES

ON SALE or RETURN

Nice Assortment
Good Value
Favourable Terms

Factories: AXMINSTER, DEVON.

This is the standard outer for one gross of 1½d. Castols. This strongly made canister is a piece of post-war reconstruction which has already proved very popular with Pharmacists. After it has served its turn as a richly-coloured display package its great strength makes it very useful for storage purposes.

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Re Antiseptic Toilet and Baby Powder, J. & J.

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Yours faithfully,

JOHN TIMPSON & CO., LTD.

Agents for JOHNSON & JOHNSON.

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Chemists can be supplied with sufficient quantity packed in artistic boxes, for window display purposes,

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"SANOID" BABY POWDER alone offers you all these advantages.

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The "Holiday" Soap

IS

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Prevents and Alleviates Sunburn, Tan and Freckles.

8d. Tablets. Excellent Profit.

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The Twenty-second

CHEMISTS' EXHIBITION

THE CENTRAL HALL.

THE

CENTRAL HALL,

WESTMINSTER,

LONDON, S.W. 1.

Monday, Tuesday, Wednesday, Thursday and Friday, June 20, 21, 22, 23 and 24, 1921.

11 a.m. to 9 p.m. Daily.

THE Central Hall is situated in Prince's Street, Westminster, S.W., facing Westminster Abbey, and close to the Houses of Parliament. Motor omnibuses from all parts pass the entrance, and the Hall is within three minutes' walk of Westminster Station on the District Railway (Inner Circle), which line is linked up with all the great London termini, so that from the point of view of easy access from all parts of the Metropolis the situation of the Hall is excellent.

From June 20-24 the largest and most comprehensive Chemists' Exhibition ever yet held will take place.

Export merchants and shippers will find that this Exhibition affords them the one opportunity of the year of viewing all classes of goods, including the latest Pharmaceutical productions under the most favourable conditions. It will also enable them to compare prices before placing orders.

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11, Miller St., Glasgow.

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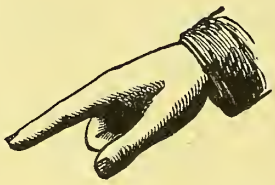
When you visit the CHEMISTS' EXHIBITION



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Pears

The
CHEMISTS'
EXHIBITION
1921.

CHEMISTS' EXHIBITION

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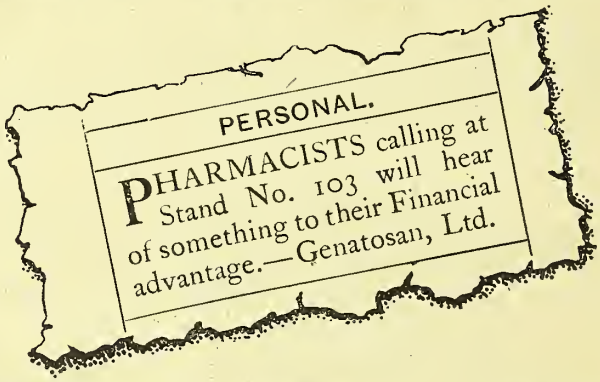

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(The Safe brand of aspirin)

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DETOXICATED VACCINES
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CHEMISTS' EXHIBITION

20-24 JUNE, 1921,

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STANDS NOS. 56 & 57

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☞ THE *LINE with the QUICK REPEATS!*

"Lion Brand" PINE BATH SALT

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Best Wholesale Terms—

Gross Lots	Per Gross	
1	22/6	less 2½ %
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20	22/6	„ 15 %

1 Gross Lots and over, Carriage Paid.

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Wholesale Botanical Druggists, **SHEFFIELD**

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Who are desirous of making a

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FOR FULL PARTICULARS.

We select one Chemist for one town or district of large town. *Write us TO-DAY.*

Owbridge's

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PRICE PROTECTED at FACE VALUE

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Chemists' Exhibition

JUNE 20-24

"A SUMMER NIGHT"

This new and delightful perfume—one of our most successful introductions—will be available, and testing samples gladly supplied, at our Stand Number **61**

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N.B.—Note the Stand Number: **61**

Re your ticket

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June 20—24

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THE "ABBEY"

Stand 38

DRUGGISTS' SUNDRIESMEN AND TOILET SPECIALISTS

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Telephone: Central 9093

Telegrams: "Abbefumery, Smith, London."

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AT THE

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Specialists in Petroleum Oils and Jellies.

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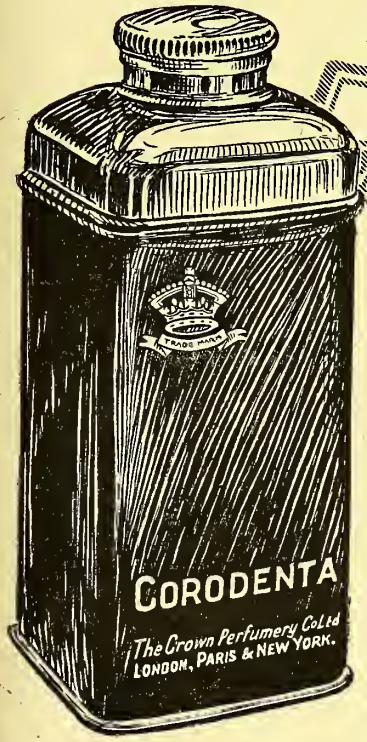

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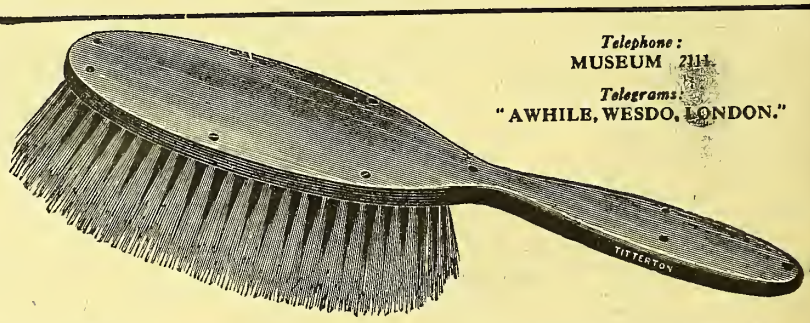

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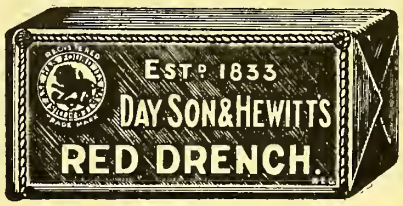

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Half a Tin of

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The Rapid Rat Remover

Latest Testimonial.—Mr. RUTLAND, Miller's Farm, Wrotham, writes, June 3, 1921:—"Results from your 'Rodine' give much pleasure. This place was overrun with rats even in daylight. I purchased a 1/3 tin of 'Rodine' and used half of it —Result: first night, 61 rats, and 39 the next two nights. These were found dead and dying. I think 'Rodine' is wonderful stuff! No smell or unpleasantness." Have you the 'Rodine' Agency? Write the Maker—

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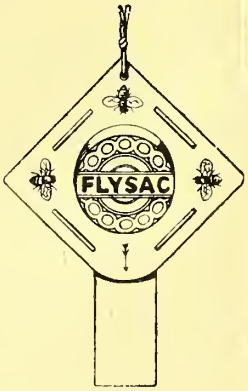

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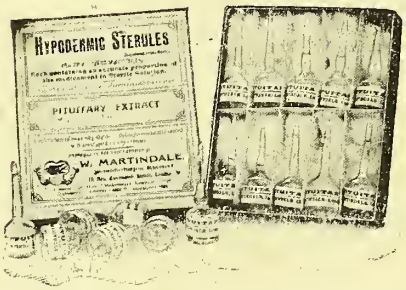
We have just completed a NEW LIST, and shall be pleased to send you a copy on receipt of card.



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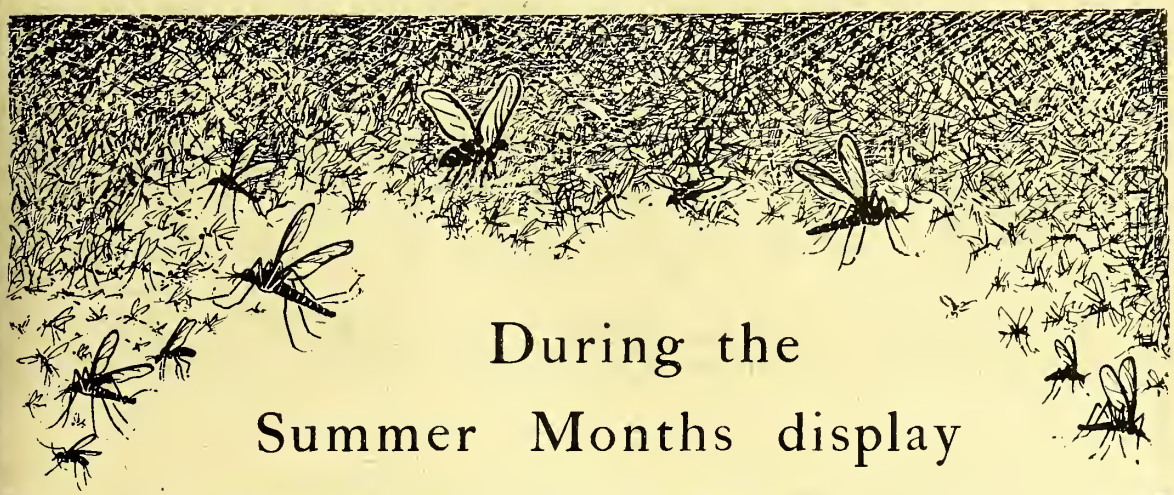

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Printed matter free on request

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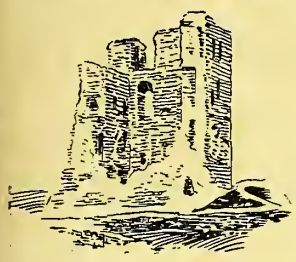

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Coming Events.

This section of the "C. & D." is reserved for advance notices of meetings or other events. These should be received by Wednesday of the week before the meetings, etc., occur.

Monday, June 20.

Chemists' Exhibition, Central Hall, Westminster, London, S.W., at 11 A.M. Daily till 9 P.M., up to and including June 24.

Tuesday, June 21.

Pharmaceutical Society of Great Britain, Connaught Rooms, Great Queen Street, London, W.C., at 6.45 P.M. Annual dinner. Tickets (30*s.* each, wines included) from the Secretary.

Wednesday, June 22.

Sheffield Pharmaceutical and Chemical Society, Literary and Philosophical Society's Rooms, Church Street, at 8.30 P.M. Annual meeting.

Thursday, June 23.

Chemists' Friendly Society, 194 Saint Vincent Street, Glasgow, at 7.45 P.M. Special meeting.

London Chemists' Golfing Society, Crew's Hill. First Round, Captain's Prize. Medal play. Second Round, Hill Cup. Bogey.

NORTH LONDON PHARMACEUTICAL ASSOCIATION.—The annual outing will take place on June 30, whole and half-day. There are a few seats left for the half-day excursion. Tickets 14*s.* each, including high tea. Apply for tickets, Mr. H. Skinner, Ph.C., G.N.C. Hospital, N. 7.

LONDON (WESTERN) PHARMACISTS' ASSOCIATION.—A motor-coach tour has been arranged for June 30, starting at 2.30 P.M. from Lancaster Gate (Central London Railway) Station, round Maidenhead, Windsor, Virginia Water, and Staines. High tea at the Thames Hotel, Maidenhead. Tickets (10*s.* 6*d.* each) from any member of the Committee. Early application essential.

BIRMINGHAM PHARMACEUTICAL ASSOCIATION.—The annual excursion will be held on July 6, when Bidford-on-Avon will be visited. Motor charabancs will start from Queen's College, Paradise Street, at 2 P.M. High tea will be served at Holland's Pleasure Gardens, Bidford. Tickets (12*s.* each), not later than June 27, from the Secretary. Those making other arrangements for the journey may obtain tickets for tea only (5*s.* 6*d.* each).

English and Welsh News.

The Editor would be obliged if subscribers would send him marked copies of newspapers containing items of interest for insertion in this or other news sections of the "C. & D."

Students' Visit to Wholesale House.

The students of the Pharmaceutical Society's School of Pharmacy, to the number of about 150, paid a visit, on June 10, to the laboratories of the British Drug Houses, Ltd., Graham Street, London, N. 1. The party was welcomed by the directors, Mr. Charles A. Hill, the managing director, giving a brief outline of the course to be followed. The visitors were divided into four sections, having as guides in the respective sections Messrs. Charles A Hill, M. C. Hill, and H. Martin; Messrs. R. R. Bennett, Salari, and Bohn; Messrs. F. H. Carr, O. Shaw, and T. T. Cocking; Messrs. H. S. Collins, A. Francis, and K. Shaw. The tour of the Graham Street premises occupied two hours. Each section worked to a time table, and so skilfully had the organisers arranged matters that neither section saw or met another section between the start and the finish. The apparatus and methods of dealing with drugs like cascara and senna in two-ton lots, the milling of ointments (a new mill for the manufacture of zinc ointment in 15-cwt. lots has recently been installed), emulsion-making, tablet- and pill-making, the patent still for distilled water, vacuum-pan evaporation, and filter presses were inspected, and numerous questions asked and answered. The hand-picking of drugs demonstrated the difference between the market article and that supplied to the retail pharmacist, and also explained the reason for the increased price charged by the wholesaler. After an interval for tea, a visit was paid to the Wharf Road laboratories, where, for nearly an hour, the company saw fine and synthetic chemicals in the various stages of manufacture, finally arriving in the room where "Eastern Foam" is packed, each student being given a pot as a souvenir. Professor Greenish expressed the thanks of the students for the interesting time they had spent, and Mr. Charles A. Hill replied on behalf of the directors.

Birmingham.

A record of Birmingham's activities during the war has appeared in bookform (Cornish, 7*s.* 6*d.*). A copy has been accepted by the King.

A recipe for castor-oil toffee appears in a recent issue of a local paper. One of the ingredients is "castor oil, twopennyworth"—which seems to indicate a childlike faith in pharmacists.

The scenic fair at Bingley Hall was a great success, thanks to the efforts of Princess Mary and the local ladies. Nearly 20,000*l.* has been obtained for a nurses' hostel.

The local association's summer outing is to Bidford-on-Avon, where high tea will be served in pleasant surroundings. All that is needed to ensure success is fine weather without thunderstorms, says the secretary's notice.

In the Geographical Tripos of Cambridge University Miss Doris M. H. Alcock, who is at Girton College, passed in Part I., Class III., and attained the standard of the ordinary B.A. degree. She is the daughter of Mr. F. H. Alcock, Ph.C.

At Birmingham Police Court, on June 7, a summons against Mr. T. J. Williams, drug-store proprietor, 323 Coventry Road, for displaying a flag over the footpath for advertisement purposes, was dismissed on the defendant promising not to repeat the offence against a by-law of which, till these proceedings were taken, he had no knowledge. The bottom of the flag, it was stated, was about ten feet from the ground.

Mrs. Effie Field, a local lady dispenser, has obtained the prize in a competition for "the most beautiful lines in English poetry." Her choice was:

O Thou, whose captain I account myself,
To Thee I do commend my watchful soul
Ere I let fall the windows of mine eyes;
Sleeping and waking, O, defend me still!
("Richard III.," Act V., Sc. III.)

The sixty pharmacy students of the Municipal School of Pharmacy visited the works and chemical and pharmaceutical laboratories at Saltley of Southall Bros. & Barclay, Ltd., on June 10. They were shown the various processes carried on there, notably the washing, bleaching, weaving, and general manufacture of materials used in surgical dressings, also the preparation of chemicals on a large scale. Mr. E. W. Mann acted as cicerone, and the party was afterwards entertained to tea.

Liverpool.

Mr. Harold Lomax has taken a house at Morecambe Bay for a month for his wife and family.

Liverpool Rotarians have shown great interest in the Edinburgh Conference and the visit of transatlantic delegates.

The Shop Hours Act worked harshly the other day, when a gentleman sailing for Japan found that he could not buy a tooth-brush on a Wednesday afternoon.

Mr. Henry Peet has effected a post-war redecoration of the Adelphi Pharmacy. He is one of the many who remain faithful to the carboys (*C. & D.*, June 11, p. 55).

Mr. William P. Evans (chairman Evans Sons Lescher & Webb, Ltd.) made every effort to get away for the Scarborough Conference, but business tied him to Hanover Street.

Concerning the increase of postal charges, it is contended that private enterprise would secure a halfpenny postage in this and other city areas and a penny postage in all other areas. Private enterprise would make use of the private motor services for many of the mails. Hull's municipal telephone success is quoted freely on 'Change.

Mr. and Mrs. Williams, who both worked so hard for the success of the Liverpool Conference, left for Scarborough on Tuesday, and had the company of Mr. John H. Robinson. They had seen the advance guard off on Saturday and the main contingent on Monday, and advised Scarborough of the departure. On arrival on Monday evening the extra rooms were booked and a wire sent: "Come along, you three, and we will meet you as the York train arrives at Scarborough."

Manchester.

A competition for a special prize in the Manchester and District Chemists' Golfing Society was held, on June 8, at Hopwood on the course of the Manchester Golf Club. The course is one of the finest in Lancashire and was in excellent condition. The leading returns were: J. A. Collins (winner), 87−2=85; T. O. Owens, 89−3=86; J. D. Guest, 107−16=91; T. Miller, 105−12=93; and W. J. Gardner, 112−18=94. After tea a meeting of the members was held. Mr. A. J. Pidd was elected *President*, Mr. J. A. Collins *Secretary*, and Mr. J. H. Franklin and T. O. Owens members of *Committee*. Golfing pharmacists in the area round Manchester who wish to join the Society should send their names to Mr. J. A. Collins, Church Lane, Harpurhey. It is announced that Mr. James Woolley's trophy will probably be played for in September.

Scarborough.

Mr. H. M. Kelsey, chemist and druggist, partner with Mr. Geo. Whitfield, who recently underwent a severe surgical operation, is now able to attend business for a short time each day.

The "Evening News" of June 11 gave a welcome to the British Pharmaceutical Conference in the shape of an invitation to visit the Italian garden, which is now at its best. The same issue contained a letter containing the old gibe about chemists' profits, based on the usual imperfect acquaintance of commerce.

Sheffield.

The new company Puree, Ltd., are advertising their medicinal remedies in the local Press.

Messrs. Preston, of Barkers Pool, have issued a very telling poster in black and green advertising their well-known cloth-ball.

The Insurance Pharmaceutical Committee have obviously satisfied the electors, as there is to be no contest for the new Committee.

A case of ammonia-throwing is reported in the City. A young woman, who had the fluid thrown in her face whilst listening to a band, is badly injured and in a serious condition.

Chemists are faced with a prospect of having to dip deeply in their pockets for local demands. The water rate just presented shows a 50 per cent. increase, and there is a talk of a 25*s.* poor rate.

The man who has been issuing false orders for goods from chemists has been caught giving orders for cigarettes. He states that he was a chemist's assistant. He has been committed to prison for three months.

A new Ordinance has been created by the University Court permitting students who have passed the Intermediate examination in one faculty to be deemed to have passed a similar examination in another faculty.

Miscellaneous.

Fire.—A fire broke out, on June 9, at the premises in Church Street, Westhoughton, belonging to Wigglesworth, Ltd., manufacturing chemists. The outbreak, caused by the gas-ovens having become overheated, was soon subdued.

Relativity.—Professor Einstein lectured on June 13 at King's College, London, W.C., on "The Development and Present Position of the Theory of Relativity." Viscount Haldane presided at the meeting and introduced the lecturer.

Wholesale Druggists' Cricket Championship.—The British Drug Houses met Burgoyne's at Crouch End, on June 11, the results being: British Drug Houses, 61; Burgoyne's, 53. G. R. Dutton made top score for the winners with 22. For the losers, Veness scored 16 and Chinnock 13.

London College at Play.—The London College of Pharmacy Cricket Club were defeated by the British School of Telegraphy at Brockwell Park, on June 8, by an innings and 10 runs. The London College total score was 116, Chalmers, supported by Everitt, contributing largely. At tennis, the London College Tennis Club were successful in a recent tournament with the South of England College.

Part I. Schools.—The Council of the Pharmaceutical Society, writes a correspondent, are experiencing difficulty in securing schools in provincial centres where Part I. subjects of the Qualifying examination may be taken. It is suggested that the grammar schools and secondary schools should be utilised for the purpose, as the instruction given at the present day is much in advance of what it was a few years ago.

Table-water Duty.—A deputation from the Aërated Waters Trade Board (England and Wales) recently interviewed the Treasury asking for relief from some of the special taxation imposed upon the trade. The total amount paid in taxation on every dozen of half-pint sweetened waters amounts to 7*d.* per dozen, taking into account the table-water duty and the sugar and spirit tax. The Board contend that a reduction in tax would lead to an increased output, and no decrease in revenue would be involved.

Chemical and Dyestuff Traders' Association.—A meeting of the London members was held at the offices, 22 Buckingham Gate, S.W. 1, on June 9, Mr. Chas. Page being chairman. It was resolved "that a committee be formed for the London area, to consist of seven members, four to form a quorum, and the following members were elected to constitute the committee: Messrs. A. F. Butler (R. W. Greeff & Co., Ltd.), John Brown (Brown & Forth, Ltd.), W. T. Bruce (W. T. Bruce & Co.), D. C. Christopherson (Clifford Christopherson & Co.), John Gordon (Fredk. Boehm, Ltd.), Chas. Page (Chas. Page & Co., Ltd.), and W. Waugh (Walter Waugh & Co.).

In the Courts.—At Merthyr Tydfil, on June 10, Redmond Coleman was sent to prison for three months for breaking a plate-glass window at 128 High Street, part of a block taken over by Boots, Ltd., as their local branch. The damage amounted to 17*l.* 10*s.*—At Richmond-on-Tees, on June 8, two soldiers named Dillon and Murray were charged with doing malicious damage to a plate-glass window to the extent of 19*l.* 5*s.* at the premises of Mr. N. Clarkson, chemist and druggist, of Richmond. The men also smashed three other windows. Dillon was sentenced to six months' hard labour, and Murray to two months.—The case against Frank Miles, in connection with the formation of a perfumery company known as Rosarian, Ltd. (*C. & D.*, June 11, p. 43), came on again at the Westminster Police Court on June 13. The magistrate allowed the charge to be withdrawn if the prosecutor's money was returned.

Irish News.

Brevities.

Dail Eireann has issued a further decree prohibiting the importation and sale, from September 1, of medicated wines and proprietary ointments.

Mr. T. W. McMullan, M.P., presided at the opening of holiday homes of the Shankill Road Mission in Bangor on June 4. Mrs. McMullan performed the ceremony.

The shop of Mr. W. J. Jones, Ph.C., 82 The Quay, Waterford, was burglariously entered recently, and twenty-two binoculars, valued at £100, were taken. A sum of money in the till and other articles in the shop were left untouched.

Mr. A. C. M'Bride, Ph.C., Medical Hall, Armagh, has been appointed to the Commission of the Peace for co. Armagh. Mr. M'Bride did good work in connection with the British Red Cross Society during the war, and with the Comforts and Prisoners of War Funds. He is secretary of the Board of Management of the co. Armagh Infirmary.

Belfast.

A grievance by mineral-water manufacturers against chemists in Belfast was referred to recently by Mr. A. T. Erskine (The Lonsdale Mineral Water Co.), who complained in the Press of the alleged action of chemists in filling their bottles with disinfectant. Some years ago a local firm were sued in court on this question, and succeeded in maintaining that it was the fault of a public department in permitting their officials to fill bottles with disinfectant.

Mr. Fred Storey, R.D., Belfast, President of the Chemists' and Druggists' Society of Ireland, has been in London endeavouring to get Ireland exempted from the Dangerous Drugs Act Regulations, owing to the difference in the English and Irish Pharmacy Acts. Mr. E. Connor, President of the Irish Pharmaceutical Society, Mr. John Smith, Ph.C., Dublin, and Mr. J. C. Culbert, Ph.C., representing the North Irish Pharmacists and the Ulster Retail Drug Trade Associations, have also visited London. It is hoped these Regulations will be withdrawn, and that others in conformity with the Irish Acts will be submitted. Mr. W. Lindsay, M.P., has taken up the matter in London, and Mr. R. J. Lynn, M.P., Mr. Moles, M.P., and Captain C. C. Craig, M.P., have also been interesting themselves in the question.

Scottish News.

Brevities.

Provost Skinner, 4 George Street, Oban, has offered a handsome challenge cup for local shinty players.

Mr. A. Taylor is closing his branch premises at Swindon Street, Dalmuir, for a few weeks for structural alterations.

The Oban Apothecaries Co., 70 George Street, Oban, have opened a high-class ladies' and gentleman's hairdressing saloon in connection with their establishment.

Councillor J. L. Gammie, chemist and druggist, 41 Duff Street, Macduff, as a member of the local Town Council, took a prominent part in welcoming the Princess Royal and the Princess Maud to Macduff in connection with the opening of the local war memorial.

Edinburgh.

Mr. C. R. Brown has joined the representative staff of Sapon Soaps, Ltd., London. [Corrected note.]

The portrait of Mr. Thos. Stephenson, Ph.C., hon. secretary of the British Association of Rotary Clubs and a former secretary of the Edinburgh Club appeared in "The Evening Dispatch" on June 13 as one of the "Men of Mark in Rotary."

The preliminary five-a-side competition in connection with the Pharmacy Athletic Club was played on June 7 at Logie Green, and resulted as follows: John Mackay, 1 goal, 1 corner; Harkness Beaumont, 1 goal; J. Duncan, Flockhart & Co., 6 goals; J. F. Macfarlane & Co., 0. Pharmacy United, 7 goals; Boots, 0.

The competition for the Mackay trophy of the Edinburgh Chemists' Golf Club, which was to be played over Burntisland course on June 22, has been cancelled on account of the restricted train service. The annual Bogey competition for the "Brown" medal was held over Torphin course on June 8, with the following result: (1) J. Adam; (2) J. Manson; (3) and (4) (tie) A. J. Clark and W. Spence.

Glasgow.

William Gardiner & Co., 83 Broad Street, Camlachie, have applied for a licence to sell poisonous substances under the Poison and Pharmacy Act, 1908.

Local chemists have received from the treasurer of the Scottish Board of Health a bonus for 1920, along with the balance of bonus for the previous year.

The Health Committee of Glasgow Corporation has instructed the medical officer of health to report on the facilities available for obtaining medicines after closing hours from pharmacies situated in the centre of the city.

Speaking on State Insurance, Sir James Leishman, member of the Scottish Board of Health, at the annual Scottish Conference of Friendly and Approved Societies, on June 4, denied that the National Insurance system was bankrupt, and predicted that the valuations now in process of completion would show that not a single society in Scotland suffered from a deficit.

Chemists' Friendly Society.

Members have been called to attend a special meeting on June 23, with a view of adopting the following proposed scale of additional benefits provisionally sanctioned by the Board of Health: Sickness, men, 5*s.* per week; women, 4*s.* 6*d.* per week. Disablement, men, 2*s.* 6*d.* per week; women, 2*s.* 3*d.* per week. Special class of married women, 2*s.* 3*d.* per week. Maternity, men, 10*s.* per week; women, 9*s.* per week. These payments are in addition to the existing scale of benefits, and, if approved, the following will be the scale of benefits payable on and after July 4, 1921: Sickness, men, 20*s.* per week; women, 16*s.* 6*d.* per week. Disablement, men, 10*s.* per week; women, 9*s.* 9*d.* per week. Special class of married women, 9*s.* 9*d.* per week. Maternity, men, 50*s.* per week; women, 49*s.* per week. The foregoing arises out of the surplus that has been found on the recent actuarial valuation of the Society. Members who did not become insured until after December 31, 1918, or who joined the Society after July 5, 1920, will not be entitled to participate in these additional benefits.

Legal Reports.

Claim for Advertisement Block.—In the Mayor's and City of London Court on June 7, before Mr. Registrar Wild, A. W. Shaw & Co., Ltd., 43 Shoe Lane, London, E.C., claimed 4*l.* 14*s.* 2*d.*, price of an advertisement block, from E. C. Burroughs, Ltd., Gresham Street, E.C. Defendant said the order was given verbally when he was manager for the Hardfast Chemical Co. The Registrar said he saw that the advertisement over which the present dispute arose was one in respect of antiseptic paint. Plaintiffs' witness said the advertisement had been paid for, but not the block and drawings. Judgment was given for the defendants.

Herb Tobacco.—At St. Albans Police Court on June 9, James Ryder, trading as Heath & Heather, herb specialists, St. Albans, was fined 20*l.* for being in possession of a quantity of herb smoking-mixture for mixing with tobacco. A statement in defendant's catalogue was: "Many of our customers find that by mixing an ounce of their usual smoking-mixture with a package of ours they have a more enjoyable smoke than they get from tobacco alone at less than half the cost." The package of the herbs bore the words "Economical Substitute for Tobacco." Defendant, who said the offence had been committed inadvertently, added that he preferred that the customer should smoke the mixture without tobacco as it afforded relief for respiratory and other complaints.

Enolin Tooth Paste Competition.—At Bow Street Police Court on June 14, before Mr. Graham Campbell, Mr. Herbert Muskett applied on behalf of the Commissioner of Police for summonses against A. & E. Carreras, 207 King Street, Hammersmith, for publishing proposals for the sale of chances or tickets for a lottery in connection with their business as vendors of Enolin tooth-paste. He was anxious to mention the matter in public because this scheme is being largely advertised, and the police had been informed that steps had been taken for further advertising. The article which he had mentioned (Enolin tooth-paste) is being sold by chemists in all parts of London, and he desired that this application and the fact that proceedings had been instituted should be made public so that people in any way engaged in the sale of tickets or otherwise promoting the scheme might know that they were doing so at their own risk. The magistrate granted the summonses asked for.

Murray's Fluid Magnesia.—In the Dublin Police Court, on June 14, before Mr. Lupton, Metropolitan Police magistrate, Mr. James Maguire, M.P.S.I., 76 Talbot Street, Dublin, was summoned by the Dublin Corporation, under the Sale of Food and Drugs Act, for having sold a bottle of fluid magnesia which the analyst's certificate stated was deficient of at least 14.4 per cent. of its weight of magnesium oxide (residue). Corporation Inspector Tutty stated that he was supplied with the fluid magnesia at the defendant's establishment, for which he was charged 1*s.* 6*d.* In reply to Mr. E. H. Burne, solicitor, who appeared for the defence, witness stated that the seal was intact, and he did not believe that Mr. Maguire had ever opened the bottle. Mr. Burne said his client purchased from a well-known house and sold the article as he got it. The label amounted almost to a legal warranty. It was a well-known proprietary medicine, and his client sold it as Murray's Fluid Magnesia. They would satisfy the Court that it was a proprietary medicine. Mr. Maguire, the defendant, stated that he was a qualified chemist and had eighteen or twenty years' connection with the trade. He always regarded Murray's Fluid Magnesia as a proprietary article. It was sold as received, and the seal was never broken. Mr. Lupton said the purchaser took the article with all its defects, and he might have a remedy at common law. Mr. Burke, solicitor, who prosecuted for the Corporation, said it was a misdescription. Mr. Lupton held that it was a proprietary article, and he therefore dismissed the summons. He said that if there was any legal liability, the person who ought to be before the Court was the manufacturer, and not the innocent seller.

New Companies and Company News.

P.C. means Private Company and R.O. Registered Office.

KEMCO, LTD. (P.C.).—Capital, 1,000*l.* Objects: To carry on the business of drug-store proprietors, chemists, drysalters, oil merchants, etc. The first directors are: H. Dean, Parkton Grove, Huddersfield; and S. Kenworthy, 157 Trinity Street, Huddersfield. R.O.: 36 Trinity Street, Huddersfield.

WRENCH, LTD. (P.C.).—Capital, 1,000*l.* Objects: To carry on the business of wholesale, retail, manufacturing, and dispensing chemists and druggists, opticians, photographic dealers, etc. The subscribers are: F. W. Wrench, Ph.C., 12A Carlton Road, Bournemouth; and Miss R. S. Osmond, 15 Florence Road, Boscombe.

W. WINDLE & CO., LTD. (P.C.).—Capital, 500*l.* Objects: To carry on the business of chemists and druggists, manufacturers, importers and exporters of, and dealers in, drugs, medicines, surgical instruments and appliances, perfumery, etc., and to adopt an agreement with G. W. Knight. R.O.: 452 Edgware Road, London, W. 2.

HOOPER STORE CHEMISTS (LYNTON), LTD. (P.C.).—Capital, 700*l.* Objects: To carry on the business of chemists and druggists, dealers in patent and proprietary articles, perfumes, leather and fancy goods, photographic and surgical apparatus, confectionery, tobacco, pipes, and rubber goods, methylated spirits, etc. The first directors are: Mrs. H. Hooper, Fairmond, Lynton, North Devon; and T. Luke, Stourton House, Lynton, North Devon. R.O.: Churchill, Lynton, North Devon.

G. B. KENT & SONS, LTD.—The directors have declared the usual dividend at the rate of 5½ per cent. per annum upon the cumulative participating preference shares for the six months ended March 31, 1921, and an extra 1 per cent. for the year ended September 30, 1920.

THE UNITED DRUG CO., of America, has called a stockholders' meeting for June 14 to obtain sanction for an increase of $20,000,000 (4,000,000*l.*) in the common stock. The company proposes to issue $15,000,000 (3,000,000*l.*) of bonds, convertible into stock at 110, to fund its floating debt of $14,000,000 (2,800,000*l.*).

Business Changes.

FAULKNER & WINSOR, produce merchants, have removed to 147 Fenchurch Street, London, E.C. 3.

TAYLORS' DRUG CO., LTD., have acquired the retail business of Charles Midgley, Ltd., at Exchange Street, and Moseley Street, Manchester.

ARCHIBALD J. WRIGHT, LTD., manufacturing electricians, have removed to 395 City Road, London, E.C. 1. The premises adjoin the Angel station on the City and South London Railway.

MR. I. S. H. BENJAMIN, sponge merchant, Glasgow, has taken a central office and warehouse at 12 York Street, off Argyle Street, Glasgow, where all communications should be addressed.

MR. A. C. PYECROFT, trading as G. & F. A. Wilman, chemist and druggist, 32 Westgate, Bradford, has taken over an adjoining shop in Godwin Street, so as to extend his dispensing department and optical branch.

C. W. JOHNSON & CO., wholesale perfumers and agents for Honoré Payan, Grasse, are removing on June 24 to larger premises at Woburn Lodge, Upper Woburn Place (next to St. Pancras Church), London, W.C. 1. The telephone number of the new premises will be "Museum" 5774.

GENATOSAN, LTD., will at the end of the year remove their business in London and Cornwall to Loughborough, Leicestershire. The "Newspaper World," referring to the appointment of Mr. Eric Hudson as general manager of the company, states that his hobby is dramatic authorship.

Westminster Wisdom.

By the "C. & D." Parliamentary Representative.

DANGEROUS DRUGS ACT REGULATIONS.

Members of Parliament have received a statement from the Pharmaceutical Society of Great Britain regarding the Regulations under the Dangerous Drugs Act which have been laid by the Home Secretary on the table of the House of Commons. The statement contains the sentence : " Not only do the Regulations, contrary, as the Pharmaceutical Society submits, to the provisions of the Dangerous Drugs Act, prohibit retailing, but they do so with consequences which do grave injustice to pharmacists." No definite course of action is suggested.

SAFEGUARDING OF INDUSTRIES BILL.

A motion allocating the time for the Committee stage, report stage, and third reading of the Safeguarding of Industries Bill was passed on June 13 by 186 to 52.

In reply to a question, Mr. Baldwin for the Board of Trade stated that in making orders under Part II. of the Bill it will be necessary to consider treaty provisions in force between the United Kingdom and Argentina, Belgium, Bolivia, Colombia, Costa Rica, Denmark, Esthonia, Greece, Honduras, Italy, Japan, Liberia, Mexico, Netherlands, Nicaragua, Norway, Paraguay, Persia, Portugal, Rumania, Serb-Croat-Slovene State, Spain, Sweden, Switzerland, United States, and Venezuela.

THE CURSE OF BUREAUCRACY.

Mr. Kellaway (Postmaster-General), referring to bureaucrats, said in the House of Commons : I find among all classes of the community, and all parties in this House, a great fear of what is called the bureaucrat. For my part, I would have a petition added to the Litany—" From all bureaucrats and other superior persons, good Lord, deliver us." I would rather be governed by the devil than by a bureaucrat. This is the characteristic of a bureaucrat—he has all the private and nearly all the public virtues. He is extraordinarily efficient. He is absolutely incorruptible. He is a terrific worker. But he has one vice, which is the most intolerable that can beset any man having authority in a free country, and that is, he desires to give the people what he thinks is good for them, rather than what they want. Mr. Esmond Harmsworth : You cannot get rid of them. Mr. Kellaway : I think that is the most intolerable vice. That is where he differs from the business man. The business man gives the people what he thinks they want, rather than impose upon the people what he thinks is for their good.

GERMAN REPARATION (RECOVERY) ACT.

Mr. Kiley, on June 13, asked the Prime Minister whether he is aware that in numerous cases German exporters to this country are demanding prepayment in full for their merchandise ; whether, in such cases, the proceeds of the duty levied by His Majesty's Customs on the arrival of the goods are to be credited to the German Government ; and, if so, whether it is intended to credit the German Government with the extra 9 per cent. duty which automatically becomes payable to His Majesty's Customs by British importers in consequence of this refusal of German subjects to send goods except under prepayment.

Mr. Baldwin, who replied, said he is informed that this course is being adopted by exporters in certain cases, though as the German Government has undertaken to refund to them the equivalent in German currency of the amount collected under the Act, there is no pretext for such a demand. The amount payable to the Customs is in all cases twenty-six seventy-fourths of the amount paid in cash to the German exporter, and the whole amount paid to the Customs under the Act is credited to the German Government as part of the reparation payment.

Mr. Kiley also asked whether the policy of the Government, in adhering to the arrangements whereby the 26 per cent. German reparation duty is collected by His Majesty's Customs in this country, is due to any misgiving as to the effectiveness of the arrangements of the German Government for collecting it as an export duty before the goods leave Germany ; and, if so, whether they were aware that in practice it is resulting in British importers having to pay in numerous cases an equivalent of 35 per cent. Customs duty, and that this is particularly serious in so far as it affects the price of raw material for our own manufacturers.

Mr. Baldwin replied that, as regards the first part of the question, he could only repeat that the Government propose to continue the German Reparation (Recovery) Act in operation until the exact effect of the arrangements to be made by the German Government is known. At present no information is available as to the nature of the arrangements for collecting the export levy which they propose.

The Financial Secretary of the Treasury stated in the House of Commons on June 14 that 48,000*l*. had been received under the Act up to June 11.

THE DENTISTS BILL.

During the proceedings before Standing Committee B on the Dentists Bill (*C. & D.*, June 11, p. 62), Colonel Wedgwood, discussing the effect of Clause 1, asked whether in the great number of additional crimes for which people can be sent to prison will be included those druggists who supply pain-killers—those more or less useless anæsthetics for temporarily stopping the pain in a tooth. He asked whether that is dental work or not, and whether selling these remedies will render a man liable to a fine of 100*l*., or imprisonment if some inquisitive dentist wants to take advantage of him. Sir A. Mond : No. My hon. and gallant friend can go on swallowing pain-killers to his heart's content. Col. Wedgwood : I am not anxious to swallow the stuff, but will putting it inside a tooth amount to a dental operation? Sir A. Mond : No. The words " for fee or reward " have been left out of Clause 1 (1), and referring to this Colonel Wedgwood raised the question as to whether the extraction of a child's tooth by its parent will make " the mamma " liable to a fine of 100*l*. Sir Kingsley Wood replied that this would not be " practising dentistry." This member also asked whether the Bill raises a distinction between the dental profession and the medical profession in that the Medical Acts do not interfere with people like Mr. Barker, " who does bone-setting rather better than some of the registered practitioners." Sir Kingsley Wood replied that " the future Barker of the dental profession will have to comply with Clause 3."

The third reading took place on June 13. Protests were made as to that stage being taken at such short notice, but a motion to adjourn the debate was defeated. Colonel Wedgwood wished to add a paragraph allowing the extraction of teeth without fee or payment so that the extraction of a child's tooth by its parent would not be treated as a crime. He withdrew the clause when Sir Alfred Mond assured the member that that class of domestic operation is not endangered by the Bill. A further protest was made that although part of the Report of the Departmental Committee had been acted upon, the suggestions for free dental clinics and scholarships for poor dental students had not been proceeded with. Dentistry has been made a close corporation confined to the children of the middle and upper classes. Mr. Lawson said that the newly registered men would raise their standard of fees to the flash prices of the West End. Lieut.-Commander Kenworthy raised the question of the application in Clause 16 of the Bill to Ireland. He asked what was the good of passing Acts for the self-government of Ireland and then trying to thrust domestic legislation of this sort on Ireland. Sir A. Mond said he did not know why Ireland should not have the benefit of this Bill. If they do not want it at some future date he had no doubt they can get rid of it then. " If at any time in the future the Government of Ireland decides to adopt any other course, there is time enough to do that when they have a Parliament of their own functioning." Later on Sir Alfred said that there is nothing in the Bill which would enable prices to be put up to the public, and that he hoped that the Bill would lead to the improvement of the dental surgery of the country.

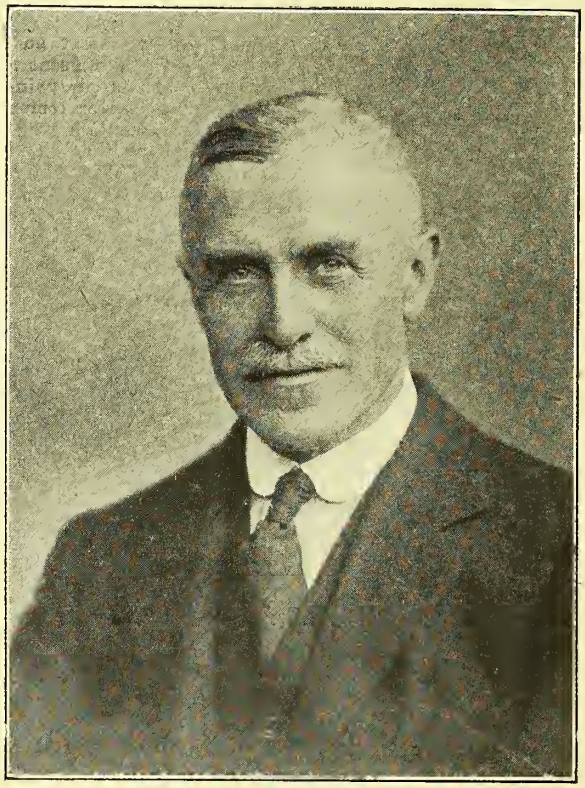
British Pharmacy and its Possibilities.

A DREAM OF THE FUTURE.

By E. SAVILLE PECK, M.A., Ph.C.

ON looking over the addresses of the distinguished pharmacists who have preceded me in this chair during the past few years, I find they can be roughly classified under four headings—those which deal purely with pharmaceutical science, those which have delved into the long-forgotten past, and endeavoured from that rich field of experience to extract lessons for the present, those which have reviewed the pharmaceutical problems which presented themselves for solution at the time, and those which sought to peer into the future and visualise things that might be or ought to be.

The purely science side has been so ably presented by my immediate predecessor that I feel it is unnecessary on this occasion to develop that aspect of pharmacy. As to what has gone before, I was sorely tempted to write of the deeds of "our fathers of old," but finally decided that it might be more profitable perhaps if I endeavoured to point out some of the anomalies which exist at the present time, and then to give free rein to my thoughts and aspirations by outlining some of the "possibilities of the future."



MR. E. SAVILLE PECK,
President of the British Pharmaceutical Conference.

CONFINING DISPENSING TO PHARMACISTS.

There are several precedents for so doing: there was the address by Dr. Tocher at Newcastle in 1909 on "Should the Dispensing of Medical Prescriptions be exclusively Confined to Pharmacists?" in which, after recognising that it had been a practice from time immemorial for doctors to supply physic direct to patients, he showed that the total transference of the dispensing of prescriptions from medical men to pharmacists would be accompanied by advantages to the medical man, the pharmacist, and the public. As a result of this address a Conference was arranged with the British Medical Association, and took place on May 19, 1910. There was a long discussion upon medical dispensing, prescribing by unqualified persons, and the sale of secret remedies, and it was also decided to set up a Joint Standing Committee, consisting of representatives of the two bodies.

The following year, however, Mr. Lloyd George introduced his National Insurance Bill. It is interesting to recall the fact that the Conference, through its executive, took immediate steps to put forward the claims of pharmacy, and this Joint Committee when it met passed the following resolution among others:

That the principle be affirmed that the dispensing under the Government scheme be done through the channels provided by the Pharmacy Acts, and that provision be made in the National Insurance Bill itself for the carrying out of the Chancellor's expressed intention that this work should be done by pharmacists.

The annual meeting of the Conference confirmed these resolutions of the Joint Committee, but the Council of the British Medical Association added to the resolution the words "or by medical men." No other meeting of the Joint Committee was held, and the work of securing full recognition of pharmacy under the National Insurance Act was carried on by the Pharmaceutical Society.

I have recited all this to point out that the Conference did, in 1909, 1910, and 1911, take action in the matter of confining dispensing to pharmacists, and to assert that, in my opinion, the time is ripe for another attempt to be made to carry the matter a step farther; and, now that the dispensing for a large class of employed persons has been largely settled by National Health Insurance, to secure that this sound and salutary principle shall be applied all round. The Pharmaceutical Society has recently made a very important move in this direction by drawing the attention of the Government to the fact that in the recent Kidwelly case of poisoning by arsenic the medicine supplied to the patient was not dispensed by a pharmacist.

PRODUCTION OF THE PHARMACOPŒIA.

At the Jubilee meeting in 1913 you will remember that Mr. J. C. Umney, after reviewing the methods by which the various pharmacopœias of the world are compiled, advocated the appointment of a Commission, to be called the British Imperial Pharmacopœia Commission, which should consist of medical practitioners, registered pharmacists of Great Britain and Ireland, the Professor of Pharmaceutics of the School of Pharmacy, and others, and that this Commission should have the exclusive right of publishing, printing, and selling the Pharmacopœia. This plan follows the lines of the production and publication of the pharmacopœias of most other countries, and it is high time that steps should be taken to bring this dream of the future production of the British Pharmacopœia nearer to realisation, or at least to see that pharmacists are represented on the Pharmacopœia Revision Committee. If this matter of the Pharmacopœia is considered impracticable, and nothing but a dream, there can be no doubt that there is a general desire on the part of medical men and pharmacists for the early production of another edition of our own British Pharmaceutical Codex. It is agreed on all sides that this is a

most valuable work and has enabled pharmacists and medical men to co-operate very closely in the prescribing and dispensing of useful combinations of drugs to the mutual advantage of patients, medical men, and pharmacists.

PHARMACY IN THE ARMY.

In my address in 1915 I advocated the formation of an Army Pharmaceutical Service Corps, somewhat on the lines of that obtaining in many of the Continental armies. In this connection I may be permitted to state that the Army Council, in December 1920, invited the Pharmaceutical Society to appoint three of its members to represent the Society upon a Joint Committee with the Royal Army Medical Corps, this Committee "to consider the employment of pharmacists in the Army in connection with the supply, distribution, and dispensing of medical and surgical supplies in peace and war, and to make recommendations regarding their organisation and status." That Joint Committee, upon which I have the honour to serve, has met on several occasions, but has not yet presented its report, and its findings are still confidential. As one of the representatives, I should, however, like to say that I consider sufficient progress has been made to justify me in thinking that a marked and much-needed advance in the position of pharmacists in the Army will result as a consequence of the work of that Committee.

RESEARCH WORK.

Then, again, in 1919 Mr. Kirkby in his address showed us the necessity for placing pharmaceutical research on a sound national footing, and, as you will see in the annual report, steps have been taken to place this matter before the Ministry of Health. These four addresses upon research, pharmacy in the Army, the British Pharmacopœia, and the question of dispensing may be considered by some to be but empty dreams and vague imaginings; but surely we may look upon them, if not as probabilities, yet at least as "possibilities of the future." Now, these addresses were given to gatherings of pharmacists and those interested in pharmacy, who were met together in conference primarily to advance pharmaceutical research and to inculcate and uphold a high standard of purity in medicines.

This Conference has no executive power such as that of the Pharmaceutical Society, and in this very fact lies at once its strength and its weakness. Its President for the time being is therefore entitled, and in fact it is expected of him, to throw out hints and make suggestions as to the aims and possibilities of pharmacy, and I intend to take full advantage of this opportunity and venture to put forward ideas which doubtless some, to quote Tennyson, will consider

Wide of the mark e'en for a madman's dream.

DEPRECIATING PHARMACY.

My dream, for such it may be considered, is of a time when pharmacy in this country shall, as has so long been the case on the Continent, have established itself as a separate professional entity—a distinct career—not merely as a handmaid to medicine, but as a calling collateral, co-existent, and interdependent with medicine. Pharmacy as a distinct craft, calling, or profession has not yet materialised as have medicine, law, and accountancy. There is need for greater publicity as to the education and qualification required of the pharmacist and the functions pharmacy has carried on for many years with credit to itself and for the public safety.

This need of publicity is clearly seen in the much-discussed Dangerous Drugs Act Regulations. If the functions of the pharmacist had been more widely understood and appreciated, it is inconceivable that the Home Office should have suggested regulations for the sale and dispensing of scheduled poisons which are in themselves a redundancy and already very largely covered by the Pharmacy Acts.

Let us consider how pharmacy is visualised by "the man in the street." In the main I suppose one must grant that he would look upon the pharmacist as the man who runs a chemist's shop or dispenses medicine in a public institution, and would consider that those practising this calling are not to be looked upon as men of education or of professional standing. There may be some ground for this point of view; but there are well-known exceptions, and many instances can be cited where individual pharmacists have achieved coveted positions in the scientific, archæological, political, and municipal worlds. This has been due to the work that has been done by many outside their pharmacy, and not because of their pharmaceutical qualification.

I recall an instance where a pharmacist read a paper of archæological interest at a meeting of a learned society, after which a lady was heard to inquire "Who is this Mr. X?" "Oh! don't you know, he's Mr. X, the chemist." "Dear me, I thought he was a gentleman."

In the Army, notwithstanding the fact that the war was a great "leveller," the same attitude was sometimes shown. I know of a case where an officer, who had all the qualifications necessary to fill a certain post but had in addition that of a pharmaceutical chemist, was turned down, as he was informed, practically on this account. I do not consider this depreciation of pharmacy is due entirely to the fact that the practice of pharmacy is for the most part carried on "behind a counter" in "an open shop," but because the calling is so very "mixed"; it has many of the disadvantages of a profession and yet lacks the essential advantages of a trade.

IMPROVING THE STATUS OF PHARMACY.

I do not intend to be inveigled into an endeavour to differentiate between a trade and a profession, nor to affirm that one is more worthy, desirable, or honourable than the other. It can well be said that many so-called professional men carry on their profession in a purely commercial spirit, while many so-called tradesmen bring professional instincts to bear upon their business. Now, are we to be satisfied with the present condition of things and our existing standing in the public estimation? Do we wish to have the circumstances altered, and, if so, are we willing to purge ourselves of those things that militate against improvement, and also to put into operation certain influences that will make for greater efficiency and a higher position for pharmacy in the social scale?

Of course, it is an essential consideration, which must precede any attempt to raise pharmacy to the status of a scientific and professional entity, that pharmacists must themselves wish for the elevation of their calling. Do they want to be recognised as possessing the technical knowledge and "competent skill" requisite for the practice of a profession, or would they rather simply draw their reward from protected profits on packed medicines? It is mere folly to complain, as some are apt to do, that pure pharmacy does not pay, and leave it at that. It never will pay until it is acknowledged as an indispensable factor, with medicine, in the nation's system of public health administration; and it never will be so acknowledged unless the will of the pharmacist is in and behind the movement.

One can do nothing for the men who want nothing and have no aspirations, but the possibilities are unlimited if the members of our calling really desire that pure pharmacy should be made to pay. I do not despise commercial acumen in pharmacists, and have never condemned the "keeping open shop," but I do want to see it made possible for the pharmacist to make a living by pharmacy in that open shop, as well as elsewhere, and by virtue of his qualification, and not be forced to rely upon activities which do not call for a qualification at all. Shall we be content in the future merely to keep open shop and continue to carry on a purely commercial pharmacy, or shall we not combine in demanding an adequate remuneration for services dependent upon technical knowledge and competent skill and warranted by virtue of qualification? For those who have the necessary education, aptitude, and desire, should we not endeavour to carve out a more distinctly professional career? The scope of such a career could include the work of clinical pharmacists or clinical analysts, on the lines suggested for the Health Centres, of research workers in the large wholesale firms, and of teachers in the approved schools of pharmacy.

Two Classes in Pharmacy.

The question of the differentiation of pharmacy into two classes has for several years exercised my mind. I fully admit that, and that the subject bristles with difficulties, and the magnitude of the task is obvious even upon superficial consideration.

To begin with, there is the difficulty of drawing a clear line between what is commercial pharmacy and what is clinical or professional. There is the training and examination essential for the one and unnecessary for the other. Then there arises the point as to where the differentiation as far as qualification is concerned should take place. In other words, where shall the differentiation between the business of a chemist and druggist and the profession of pharmacy come in?

On the Continent the division is made between those who can only sell drugs and certain poisons, and those who can be entrusted with the dispensing of medicines and physicians' prescriptions—with the addition in some cases of clinical analysis. In this country such an arrangement would not, I consider, at the present time be practical politics. The vested interests in dispensing are far too great, and, moreover, the training required, and the standard of the examination demanded to qualify as a chemist and druggist, is probably sufficient for the duties he is called upon to perform at the present time. But there is the Major examination, which could be extended so as to include subjects which would cover clinical analyses. and the training for which would enable the student to undertake this work. The differentiation could take place here with less difficulty and disturbance than anywhere else—that is, between those who pass the Qualifying examination and those who elect to proceed to the Major examination and qualify as pharmaceutical chemists. I shall go more fully into this point later in my address.

Clinical Analysts.

Here I would remind you of the report of the Consultative Council on Medical and Allied Services, which indicates that it is proposed that a Committee shall be appointed to investigate and report upon the question of what should be the future functions of pharmacists in relation to the services the Council were devising, and as to the most appropriate training and qualifications for those who are to perform these functions. In Section VI. of this report it is stated: "It is a matter for consideration whether in certain cases, at any rate, individuals might not combine the duties of the pharmacist with those of the laboratory assistant."

This leads us to consider whether there is room for such trained men apart from the proposed Primary and Secondary Health Centres. Does the average general practitioner need the assistance of a trained clinical analyst to aid him in diagnosis and subsequent treatment? Would there be sufficient demand for such work in towns of, say, over 50,000 people to warrant the pharmacist in acquiring the requisite knowledge and setting up the necessary bacteriological and chemical laboratories for this purpose? I think there is room for such a development, especially where there is not at the present time a clinical institute providing for such work in the neighbourhood. In connection with this there are several wholesale houses, especially those with a retail branch, who need men qualified to undertake this work.

I have recently visited the laboratory of a pharmacist where, in addition to a very flourishing business as a pharmaceutical chemist, he carries on an extensive bacteriological practice. He conducts urine analyses, both chemical and bacteriological, carries out blood-counts, the examination of secretions for tubercle bacillus, diphtheria, etc., the Wassermann reaction, and the preparation of autogenous and other vaccines. This pharmacist invites and encourages inspection of his laboratory, and argues that it is better to demonstrate by actual work of this kind than to advocate it by discussions and papers upon the subject. Surely such work can be carried out at other centres by men adequately trained for the purpose.

A pharmacist who is actively engaged in clinical work, and thus closely co-operating with medical men, is obviously bound to attract much of the important work of the preparation and dispensing of drugs. This will tend to relieve the commercial firms of some of the occupation and duties which they frequently assert do not bring a commensurate profit. The exploiting of dispensing at unremunerative rates to act merely as a "bait" for other business is reprehensible and unprofessional. If pharmacy is really to rise, phœnix-like, from the ashes to which it has been reduced, I am convinced it can only be by the evolution of a higher grade of pharmacists who shall be trained to do this kind of work, and entitled to practise as clinical analysts, and so make pharmacy a more definite professional entity.

Pharmacy in the United States.

During the war I enjoyed the advantage of spending a year in the United States of America, and visited many pharmacies in different States and cities. It is neither untrue nor unkind to say that in the drug stores there pharmacy is very much more "mixed" than in Great Britain, but occasionally one did meet with firms where little else than dispensing of prescriptions and sale of drugs took place. On the other hand, the schools and colleges of pharmacy are of a very high order, and invariably connected with one of the State universities. The pharmaceutical syllabus consists of a minimum course of instruction of 1,200 hours, and in addition to the subjects required for our own examination includes physiology, toxicology, and the action of drugs upon healthy and diseased organs.

It is interesting to note that a Committee of the American Pharmaceutical Association has recently reported upon and outlined a scheme for the institution of two classes of pharmacies—(*a*) drug-stores and (*b*) pharmacies. This scheme is given in detail in the "Pharmaceutical Journal," May 29, 1920, and well deserves careful consideration. I refer to this, not with a view of suggesting that we should copy their ideas, but to indicate the trend of thought that is taking place in the United States of America. In short, therefore, practically the whole of the European countries have these higher qualifications of pharmacists, and now America also is seriously discussing this question. Are we to be left hopelessly behind? I am convinced that the time has arrived when we must endeavour to reawaken in the rank and file of pharmacists more of the professional spirit and an outlook beyond the many profit-making schemes that are suggested to us week by week by clever and imaginative advertisers. We must not be content, on the one hand, to benefit by the protection and privileges of a profession, and, on the other hand, seriously to compromise the situation by an attitude of complacent commercialism.

The Policy for the Future.

In the past we have been far too prone to be the butt of others, and have been content merely to defend our position and our rights. Let us in the future endeavour to use the other means of defence—that is, to attack the positions against us. In the war the immediate objective on most occasions was a short line of trench, some 80 to 100 yards away; but there were always many others beyond, and the final objective was always present in the minds of those responsible for the "higher strategy." What shall be our "final objective"? Nothing less than the evolution of a real profession of pharmacy. If we do not advance from our present position and secure that these clinical duties shall be performed by pharmacists, there is a grave danger that, with the surplus of medical men and women that will very likely occur in the next few years, we shall find that our objectives have been occupied by others. Besides those holding the medical qualification, there is already an indication that there may be other competitors, for I have recently heard of one school which advertises not only a course for the teaching of dispensing, but, in addition, courses in bacteriological and clinical analyses, which are stated to be framed to fit its students for posts under the Ministry of Health.

In short, my dream is of the institution of a qualification based upon the present Major—and, seeing that the

term "Minor" is now obsolete, there is no point in retaining the word "Major"—to be called the Fellowship examination, and that powers should be obtained to entitle the holder to call himself a clinical analyst or clinical pharmacist or registered clinical assistant of the Pharmaceutical Society.

I believe I am right in thinking that some years ago an effort was made by a few prominent pharmaceutical chemists to establish an institute of clinical analysts, but for various reasons the project fell through. Could not the Society, by means of its Major or Fellowship examination, take the place of such an institute, and so render unnecessary the formation of a body outside the Society?

It is repeatedly argued, and with good grounds, that the present Major qualification has little or no pecuniary or other value beyond the confidence which increased knowledge invariably gives; but if the attainment of this examination carried with it the right of registration as a clinical analyst of the Pharmaceutical Society and a Fellowship of the Society, it would immensely increase the value of such a qualification and tend to raise pharmacy in the public estimation.

It is my opinion that a qualification of this kind would attract good men, would be acceptable to the Ministry of Health, would fulfil a need that must arise in the future, and would, by a process of evolution perhaps rather than of differentiation, create a profession of pharmacy which would be collateral, co-existent, and interdependent with the medical profession.

Examinations Reviewed.

If it is agreed that we should make this endeavour, let us consider the influences we must set on foot to carry out our desires. First there is the question of preliminary general education; but, as I went into this subject pretty fully on a previous occasion and "in another place," I do not intend to say much now. But I should like to repeat that in my opinion it should not be too high a standard to require that every student before registration should pass one of the School Certificate examinations. These examinations have been recognised by the Board of Education as equivalent to and interchangeable with the examination for Matriculation at the Universities and other entrance examinations to professional studies. Apropos of this a very interesting paper was read by Dr. Henry L. Taylor, of Albany, New York, U.S.A., at the Eleventh International Congress of Pharmacy, in September 1913, at The Hague, entitled "Pharmaceutical Education in Different Countries."

The passing of the Registration examination should, without doubt, be completed prior to apprenticeship, and it should be a question of honour among pharmacists not to accept an apprentice or pupil until that person has so registered. On my visits to several schools where students have already begun their curriculum of study for Part I. of the Qualifying examination I have frequently discovered instances where this point has been overlooked.

Secondly, there is the question of the present Qualifying examination for registration as a chemist and druggist. The division of the Qualifying examination into two parts, and the enforcement of a curriculum of study at approved institutions, is a step the importance of which cannot be overestimated. I feel sure it will lead before long to a more thorough and permanent education in the sciences which underlie pharmacy, and incidentally to an increased percentage of passes in the examination. I do not advocate, at the present time at least, any serious extension of the syllabus either for Part I. or Part II., although some rearrangement of the subjects and readjustment of hours would, in my opinion, be advantageous. I consider there is much to be said in favour of adding to the Qualifying curriculum some outlines of commercial science. If the main work of the chemist and druggist is commercial, let that commerce be carried on in a scientific manner, I consider that the syllabus for chemistry, botany, and physics should be one that could be covered by a general elementary course in these subjects as arranged at University colleges and technical schools for students reading for the London Inter-Science examination, First M.B., and others. Personally I should welcome the introduction of written papers, and would be prepared to accept the certificates of certain other examining bodies in lieu of our own Part I.—New Syllabus.

The real difficulty is the inability of teachers to deal adequately with the subjects in the time allotted. I am repeatedly told that a whole academic year is required for Part I., especially if the student intends to go on to the Major, or a degree of B.Sc., or the Fellowship of the Institute of Chemistry. Under the present arrangement the teacher finds that "either he has to work to a pattern to make the work of the examiner easy or he is tethered lest he lead his pupil to browse beyond the common plot."

As to the schools for Part II., they will need constant watching and nurturing by the Society, which should look upon them as branch schools, and supply them with diagrams, lantern-slides, and specimens of drugs, so as to humanise and render more practical the courses of instruction in the technical subjects. The teachers of pharmacy in these schools are, for the most part, enthusiastic, capable, and efficient, and endeavour to instil into the students a high ideal of pharmacy as a calling. In many of the schools the students have all the advantages of the corporate life of the college, and the comradeship of students working for the qualifications of other professions. This is in itself a great gain, and one which, indirectly, will do much to increase the prestige of pharmacy in the public estimation. Endeavours should be made to maintain in the mind of the student such ideals that in post-graduate life he may be the better able to take a leading part in the public life of pharmacy and of the country generally. The words of Sir Clifford Allbutt in his Presidential address to the British Medical Association last July can equally be applied to pharmacy. "He [the medical student] may leave his hospital school full of ardour and in rapid growth, but in practice his ardour cools and he drops into routine; or, at any rate, such is his peril, and so less and less may the doctor feel himself a member of a great profession; he may drift out of public affairs, his outlook and sympathies may shrink, his work become a trade, and his medical neighbour his 'opponent.'" It should be the aim of the reorganised local associations to encourage and stimulate among their junior members a continuance of the scientific spirit which they have acquired, at least to some extent at their college or school.

Then, lastly, there is the improved and modified Major examination, which I trust the Council of the Society will proceed with at an early date.

May I offer one suggestion? With a view to creating the qualification of clinical pharmacist it might be advisable to include practical physiological chemistry, and bacteriology (including clinical microscopy) among the compulsory subjects. If certificates of training and examination in these subjects from lecturers and examiners at a medical school similar to those required for the diploma of Public Health were accepted in lieu of the Society's examination in these subjects it would not only make for economy, but the final qualification would carry more weight with the Ministry of Health and medical practitioners.

To Recapitulate.

Pharmacy, if it is to progress, will have to move forward with the advance of general education and of applied science. If it is to take up its position with other professional bodies it must bring its final qualification up to University and Continental standards. If we cannot differentiate between the druggist and the dispensing pharmacist we can at least endeavour to evolve a higher type of pharmacist on the lines suggested.

You will doubtless say that to carry all these things into effect will require an earthquake or a volcano. You will remind me that volcanoes are now extinct in this country, or regulated by formula to erupt only with mild propriety. But, at any rate, they may be considered as some of the "possibilities of the future," and an attempt can be made to bring them nearer to the realm of to-day. The President of the Society has outlined in his recent memorandum a scheme for organising its members and associates into properly constituted associations which shall function as local branches of the Society. Two important objects of these local branches are:

(1) To watch the professional interests of pharmacists.

(2) To promote papers upon scientific, technical, and educational subjects.

It is just here, in these local associations, that the professional spirit of pharmacy should be reawakened and discussions encouraged upon various topics initiated by the Society, and possibly assisted by official speakers. To mention a few of these subjects, the following might be cited :

(1) Elementary education required for registration.

(2) Conditions of apprenticeship.

(3) The curriculum of study for the Qualifying examination.

(4) The future scope of the Major examination.

(5) The question of granting a Fellowship of the Society to those who proceed to the Major examination.

(6) The work of the Ministry of Health and the duties pharmacists should be called upon to render.

(7) The separation of prescribing from dispensing.

(8) The representation of pharmacists upon the Pharmacopœia Revision Committee.

(9) The disadvantage of encouraging the sale and prescribing of medicines of unknown composition.

(10) The stimulation of practical pharmacists to contribute original work in the compilation of the British Pharmaceutical Codex.

All these subjects are well within the scope of the professional side of pharmacy, and discussions upon these matters within local associations would doubtless prove of great value. These associations or local branches of the Society could appoint delegates to an annual conference or federation, which would then focus the considered opinion of their members upon professional matters.

Then, again, the various schools of pharmacy would greatly benefit by an interchange of ideas, experience, and methods between the heads of their different departments. An annual conference of such teachers could take place with the object of promoting and advancing and interests of pharmaceutical education.

This brings me to my last point. The British Pharmaceutical Conference has done and is doing a great work in stimulating research and maintaining a high standard of scientific pharmacy. It has for over fifty years annually brought together pharmacists and others interested in pharmacy from all parts of the United Kingdom and Ireland, and oft-times has welcomed those from the overseas Dominions. It has published a "Year-Book of Pharmacy" of which it may well be proud. It has received year by year the hearty welcome and enjoyed the unstinted hospitality of the local Committee, and especially of the municipal authorities of the cities at which its annual meetings have been held. It has been a reunion of those who for the most part have been imbued with a true professional spirit. It has received delegates from local associations, and has frequently discussed educational problems. Cannot the Conference absorb within its constitution and administration the suggested Federation of Local Associations and the Association of Pharmaceutical Teachers? Has the Conference the necessary authority and funds?

During the war the paramount necessity for unity of control was seen to be vital if victory was ultimately to be achieved. In British pharmacy to-day there is need for a closer union of "purpose, counsel, and activity" of all those who are working for a full realisation of the profession of pharmacy.

One of my dreams is of a central unifying association which shall bring together and co-ordinate those forces of which I have been speaking. The union of these forces—education, qualification, research, and professional conduct—should result in the evolution of a real profession of pharmacy, which, co-existent and interdependent with medicine, should work for the advancement of the health of the great nation to which we belong. Some of you may say :

I talk of dreams,
Which are the children of an idle brain,
Begot of nothing but vain fantasy.

May I not claim, at least?
I had a dream, which was not all a dream.

Personalities.

Mr. Ernest W. Ewell, chemist and druggist, Dover, was on June 6 installed as W.M. of the Peace and Harmony Lodge of Freemasons, No. 199.

At the meeting of the Blackburn Board of Guardians, on June 11, the resolution was reaffirmed increasing the salary of Mr. J. Holden, dispenser at the infirmary.

Douglas Beaton, second son of Mr. Edward Beaton, chemist and druggist, Belsize Park, London, N.W., has been awarded a scholarship at the City of London School.

Mr. R. Cecil Owen, B.Sc., chemist and druggist, 89 Foregate Street, Chester, has been appointed secretary of the newly formed Rotary Club at Chester.

Professor Naoshi Mochizuki, Toyama Pharmaceutical College, Japan, is at present on a visit to this country in order to study the conditions of English pharmacy.

Mr. Harry Jephcott, M.Sc. (Lond.), F.I.C., Ph.C., chief chemist to Glaxo, and Mrs. Jephcott, who is also a pharmaceutical chemist, have recently returned from Australasia, where Mr. Jephcott has been developing the scientific organisation of the Glaxo factories.

Mr. E. Blewitt, chemist and druggist, who was formerly in business in the West End of London, but who has for the past twenty years been with Lennon, Ltd., Gatooma, Rhodesia, is at present in this country. Mr. Blewitt, whose address is Bedruthan, Highfield Road, Purley, tells us he will be glad to give advice on Rhodesia by appointment at the Overseas Club, Aldwych, W.C. 2.

Mr. E. Saville Peck, M.A., Ph.C., whose portrait as President of the British Pharmaceutical Conference appears elsewhere in this issue, was President in the war year 1914-15. We published a biography of Mr. Peck (*C. & D.*, July 17, 1915, p. 41) at a time when he was on active service. Mr. Peck is the son of the late Alderman George Peck, a well-known Cambridge chemist, to whom he was apprenticed and whose business at 30 Trumpington Street he took over in 1904. Mr. Peck won the herbarium bronze medal of the Pharmaceutical Society in 1884, passed the Minor examination in 1888, and the Major in 1889. He then studied for the Cambridge degree in Arts, graduating as B.A. in 1896 and as M.A. in 1899. He served as an examiner of the Pharmaceutical Society for some years. Mr. Peck, who has been connected with the Territorial Forces for many years, became a major, and in 1916 was appointed Commandant of the Eastern Command Anti-Gas School, in which capacity he trained hundreds of officers and men in defensive measures against the German poison-gas warfare. In 1917 he organised a large school on similar lines at Crowborough, and at the end of that year he was sent to the United States to assist in training American troops. He travelled many thousands of miles, visiting the different Army schools, and was appointed British advisor at the United States Army Gas School, at which the instructors for other camps were trained. Major Peck returned to England after the Armistice and rejoined his unit. He was in February 1919 nominated by the Pharmaceutical Society as a member of the Civilian Advisory Board under the Ministry of Labour, and was sent to the British Army in Italy to explain the scheme by means of which officers and other ranks could obtain Government grants to train them for civilian life upon demobilisation. Mr. Peck assisted the Pharmaceutical Society in making provision for the training of the large number of pharmaceutical students who received training grants upon leaving the Army, and he has inspected and reported upon the training facilities at teaching institutions in Great Britain. These reports form the basis upon which recognition is given to schools and technical institutions under the curriculum scheme of the Pharmaceutical Society. Mr. Peck has contributed many papers to the British Pharmaceutical Conference, his research on the detection of arsenic in ferrum redactum forming the basis of an improved monograph in the British Pharmacopœia. He was secretary of the Conference from 1901 to 1912, when he was elected a Vice-President. In 1913 he received a presentation in acknowledgment of his services to the Conference.

Births.

DENSLEY.—At St. Faith's, Ealing, London, W., on June 11, the wife of E. G. Densley (W. Chas. Brumleu, 7 Mincing Lane, E.C.), of a son.

EDEN.—At "Glenthorne," Workington, Cumberland, on June 9, the wife of Tom Eden, M.P.S. (Southall Bros. & Barclay, Ltd., Birmingham), of a daughter.

Marriages.

GOURLEY—CARLETON.—At Belfast, on June 8, by the Rev. W. G. Smythe, Edmond Theodore James Gourley, M.P.S.I., only son of Mr. J. Gourley, Cookstown, to Elsie, only daughter of Mr. J. J. Carleton, Liverpool.

MANSON—GOWDY.—At Holy Trinity Church, Southwick-on-Wear, Sunderland, on June 8, by the Rev. E. W. Bolland, M.A., rector, Thomas Henry Manson, chemist and druggist, Anfield, Liverpool (formerly of Southwick), to Hetty Florence Gowdy, 57 Stoney Lane, Southwick-on-Wear.

TOTHILL—BATES.—At Christ Church, Epsom, on June 6, Mr. William Henry Tothill, son of the late Mr. H. J. Tothill, chemist and druggist, High Street, Epsom, to Daisy Muriel, youngest daughter of Mr. James Bates, Wellington Hotel, Epsom.

Deaths.

HARRISON.—On June 6, Mr. Wesley Waide Harrison, chemist and druggist, 147 Mason's Hill, Bromley, Kent, aged thirty.

KEMPSTER.—At 78 Ombersley Road, Balsall Heath, Birmingham, on June 2, Miss Elsie Ellen Kempster, chemist and druggist.

MASSINGHAM.—At Milton House, North Denes Road, Great Yarmouth, on May 26, Mr. Hugh Mortimer, Massingham, retired chemist and druggist, aged seventy-five.

PETTY.—At Lewisham Hospital, on June 7, Mr. W. J. Petty, representative in London of Allen & Hanburys, Ltd., aged fifty-five. Mr. Petty joined the business in October 1885 as a clerk in the counting house, and in 1898 was placed on the representative staff. He had been in failing health for some time with gastric trouble, and this was followed by a nervous breakdown. The funeral took place at Forest Hill Cemetery on June 11, when the company and staff were represented by Mr. Reginald J. Hanbury, Mr. J. F. Graves, and Mr. H. S. Killingback.

TIBBS.—At Oaklawn, Reigate, on June 7, suddenly, Mr. John Evan Tibbs, oil and turpentine broker, 50-51 Lime Street, London, E.C., aged seventy-eight. Mr. Tibbs was an old and respected member of the Baltic Mercantile and Shipping Exchange, his family having been connected with the "Baltic" for nearly a century.

WOOD.—At 14 Palm Street, Rusholme, Manchester, on June 1, Mr. Alfred Wood, chemist and druggist, aged sixty-eight.

Wills.

MR. HENRY STEPHEN MARTIN, chemist and druggist, 15 St. James's Road, Tunbridge Wells, who died on March 16, left estate of the gross value of 19,577*l.* 0*s.* 2*d.*, with net personalty 8,466*l.* 18*s.* 2*d.*

MR. HENRY BARTON, chemist and druggist, Bridge Street, St. Ives, Hunts, who died on April 2, left estate of the gross value of 3,952*l.* 17*s.*, of which 2,854*l.* 9*s.* 3*d.* is net personalty. Probate of his will has been granted to his sons, Frederick Cooke Barton, chemist, St. Ives, and George Barton.

Association Affairs.

London.—The London (Western) Pharmacists' Association has appointed the following officers for the coming session: *President*, Mr. W. E. D. Shirtliff; *Vice-President*, Mr. H. S. Watson; *Treasurer*, Mr. H. Raithby Procter; *General Secretary*, Mr. J. P. Ellerington, 1 Cranbourn Street, W.C. 2; *Assistant Secretary*, Mr. R. R. Pratt, 94 Canterbury Road, N.W. 6; *Social Secretary*, Mr. H. Martin, 22 Graham Street, City Road, N. 1.

London (S.W.).—The annual general meeting of the South-West London Chemists' Association was held recently, the President (Mr. J. Humphrey) in the chair. The secretary and treasurer read their annual reports, which were adopted. The question of making a grant from the Association funds to the branch of the Retail Pharmacists' Union was discussed, and it was finally agreed that a loan be made. The officers for the forthcoming session were elected as follows: *President*, Mr. E. A. Atkins; *Vice-President*, Mr. G. Barratt; *Treasurer*, Mr. J. E. Monaghan; *Secretary*, Mr. T. E. Lewis; *Council*, Mrs. Tuke, Miss Borrowman, Messrs. Brook, Bolwell, Glew, Garton, Ingham, Mills, Rees, Shakerly, and Wells; *County Executive Representatives*, Messrs. Atkins, Keall, Humphrey, and Skues, the latter to be *ex-officio* members of Council. Mr. Atkins, in accepting the chair, paid a high tribute to his predecessor, Mr. Humphrey, who had occupied the position for the past three years; and votes of thanks to him and the other retiring members of Council were passed.

Newport (Mon.).—A meeting of the Newport (Mon.) Chemists' Association was held recently, Mr. Menhinick (President) in the chair. The President referred to the Association's great loss through the death of Mr. Benson Harries, and a vote of sympathy was passed. A vote of sympathy was also passed with Mr. Findlay on the death of his brother. It was decided to communicate with certain firms with a view to inducing them to protect their articles through the Proprietary Articles Trade Association. Mr. Mallinson was elected returning officer in connection with the Pharmaceutical Committee election.

Summer Outings.

Hoffmann-La Roche Outing.

ON June 11 the London staff of the Hoffmann-La Roche Chemical Works, Ltd., 7 and 8 Idol Lane, E.C. 3, held their first annual summer outing. The party, consisting of the manager, departmental heads, office staff, and warehouse employees, proceeded to Chislehurst Common, where sports were indulged in. A cricket match between two picked elevens, in which the ladies distinguished themselves, ended in a draw. Tea was served under shady trees, the company afterwards proceeding for a ramble through the woods. A thoroughly pleasant day was spent, and it was unanimously decided to make the function an annual event.

Birmingham Pharmacists' Motor Club.

THE first run of the season of the Birmingham Pharmacists' Motor Touring Club took place on June 12, and was attended by about thirty members. The meeting-place was the tram terminus, Alcester Lanes End, Birmingham, and the run started at 12 noon, the destination being Mr. Mousley's cottage, "The Rest," at North Littleton. After lunch in "picnic" style in the garden, the party went for what Mr. Mousley called "a few yards' walk to the river," and returned about two hours afterwards, having walked about ten miles! Mrs. Mousley, however, restored peace by providing the party with huge rations of strawberries and cream. Just before leaving for home, an informal meeting was held, and the following officers appointed to fix future dates and runs: *President*, Mr. J. W. Atkinson; *Captain*, Captain L. J. L. Sparke; *Secretary*, Mr. F. Mousley; *Treasurer*, Mr. R. Howard; *Member*, Mr. W. W. Adams. It is hoped to make runs every fortnight, Wednesday and Sunday alternately. The party returned about 7 P.M., having spent an enjoyable day.

Trade Notes.

Tuskoid Combs are a special line with H. J. Lee & Co., Osborne Works, Lancaster.

Netto.—The Cooper Laboratory, Watford, offer, until July 16, special wholesale rates, etc., for Netto, a non-inflammable liquid dry-cleaner.

Field Glasses.—Arthur E. Sayer & Co., Sherlock Street, Birmingham, invite inquiries for agencies for prismatic binocular field and marine glasses.

Southalls' Towels are now made, as before the war, with white wool back and front, except size 0. The prices are given in the advertisement in this issue of Southall Bros. & Barclay, Ltd., Birmingham.

Mr. Reginald W. Barker, patent and trade-mark agent, Vulcan House, 56 Ludgate Hill, London, E.C. 4, asks us to call attention to his number, which was wrongly given in advertisements in recent issues of this journal.

Stocktaking.—The Bethnal Green premises of Allen & Hanburys, Ltd., will be closed on June 28-30, inclusive, for stocktaking. Small urgent orders can be executed at the company's establishments at Plough Court, Lombard Street, London, E.C. 3, and 7 Vere Street, W. 1.

Whitaker & Co., Kendal, makers of "Luton" straw-hat dyes, invite chemists visiting London to their showrooms at Craven House, Kingsway, where samples of the "Luton" straw-hat dyes and "Auroral" dyes (the new cold-water tints) can be seen, together with the counter showcase, show-matter, etc.

Display Stands.—The advertisement in our last issue of Philip Josephs & Sons, Ltd., 93 Old Street, London, E.C. 1, contained illustrations and prices of a series of modern display stands. The stands are of oak, in various styles, with or without glass shelves. The tilting top oak pedestal stand is particularly smart. They are an attractive up-to-date method of displaying goods in the window or on the counter stands. The telegraphic address is "Josiphiah Finsquare London" and telephone "Clerkenwell 2191."

Martindale's Price List.—Part I. of this list, which, owing to its complicated nature could not be issued while prices were changing so rapidly, is now being printed. From an advance copy which we have received we see that many novelties have been introduced. Among these are the "Optimus" dry method cachet machine, "Phenolaine" (a new synthetic anæsthetic), Omnevit (a vitamine food), Magisal (soluble aspirin), peptone for the treatment of asthma, formosyl (a formalin disinfectant), pituitary preparations, a complete assortment of "Sterules," and quinidine and cinchonidine preparations for malaria. On the cover of the list are three reproductions of photographs of drugs growing on the firm's experimental drug-farm. Dr. Martindale tells us that he took the "snaps" with an ordinary Kodak, and he is to be complimented on the excellent results. The list can be obtained post free from W. Martindale, 10 New Cavendish Street, London, W. 1.

Chemists' Exhibition.—The following are among those who are showing their goods at the Chemists' Exhibition, which opens at the Central Hall, Westminster, London, S.W. 1, on June 20:

Abbey Co., Ltd.
Areco, Ltd.
Berton, Arthur, Ltd.
Browning, The Wm., Co., Ltd.
Calnan, W. H., & Co., Ltd.
Crown Perfumery Co., Ltd.
Culmak shaving brushes.
Erasmic Co., Ltd.
Ford, Cook & Co., Ltd.
Genatosan, Ltd.
Harker, C. R., Stagg & Morgan, Ltd.
Howards & Sons, Ltd.
Owbridge, W. T., Ltd.
Pears, A. & F., Ltd.
Price's Patent Candle Co., Ltd.
Wigglesworth, Ltd.

Poisonings.

The following cases of fatal poisoning have been recorded since our last report:

At an inquest at Bradford, on June 8, Annice Brickley (sixty-one) was found to have committed suicide by taking salt of lemon.

Two sisters who carried on a farm at Egglestone-in-Teesdale committed suicide whilst temporarily insane. One of them took salt of lemon.

At Bradford Joseph Cook, who had been out of work for eighteen months, committed suicide by drinking a solution of ammonia while of unsound mind.

At Carnlough, co. Antrim, Francis Speers died from carbolic-acid poisoning. There was no evidence to show whether the poison was taken intentionally or not.

A verdict of death by misadventure was returned in the case of Leonard Loftus, Blackley, Manchester, who died from the effects of "acid," taken in mistake for medicine.

Amy Maria Mansell (thirty-five), Collin Street, Pentonville, London, N., after a vain search for rooms for herself and family, at St. Pancras, committed suicide with spirit of salt.

Mrs. Alice Mather, living at the Great Central Hotel, London, N.W., committed suicide with veronal. A letter left behind stated that she could not face more years of the loneliness she had felt since her husband's death in 1914.

At Rhyd-ddu, on June 9, the inquest on the body of Lieutenant Russell Hughes (*C. & D.*, June 4, p. 46) was concluded. The verdict was that death was due to arsenical poisoning, but that there was not sufficient evidence to show how the poison was administered.

At Coventry an infant named Dickens died from drinking a sleeping mixture belonging to its grandfather. Medical evidence given at the inquest showed that the mixture contained morphine, and that the baby had probably drunk a tablespoonful or more. A verdict was recorded correspondingly.

At an inquest at Greenall's Farm, Quernmore, Lancaster, on June 13, evidence was given that Agnes Ella Squires Woodhouse had taken a quantity of antiseptic lotion, which was purchased for a cow with a bad foot. A verdict of "Death due to carbolic poisoning, self-administered," was returned.

Joseph Joshua Wiltshire (fifty-five), cemetery superintendent and parish clerk, Wootton Bassett, whose decomposed remains were found recently near Beachy Head Coastguard Station, was found at the inquest to have committed suicide. A bottle which had contained prussic acid was found near the body. The chemist's address on the label was the clue which led to the identity of deceased.

Information Department.

INFORMATION WANTED.

M/116. Dr. Newton's magnetic belts
R/166. Elizabeth Arden's toilet preparations
B/136. "Feunon" or "Fennon" salts
P/156. "Liquoid" for hay fever
W/106. Michel's clips
E/106. "Novo-Zinol"
B/146. "Oxonator" fluid
T/156. "Purgos" aperient water
M/106. "Reinette" syrup of apples
F/136. "Sanophen" disinfectant fluid
N/96. Wynter's foot salve

INFORMATION SUPPLIED.

Arova depilatory, B/315
Bone rings and shields for soothers, F/315
Electrical massage instruments, S/96
Foot-print soaps, A/285
"Haline," A/215
Lactogen, A/66
Lauraline, B/315
Protosil, W/285
"Noviod," A/215
Dr. McDonagh's anti-shock treatment, M/16
Nucocoa, E/285
"Saratoga" suspensory bandages, J/106

Observations and Reflections.

By Xrayser II.

The Safeguarding of Industries Bill

certainly needs the improvements you hope it will receive from the House of Lords. I do not profess to understand every detail of the Bill or its exact scope, and perhaps some aspects of the principle on which it is based have prejudiced me against it, but granting the principle and the special needs of the time I see very serious objections to the mode in which the Bill seeks to give effect to the principle and to meet the danger in which (possibly) we stand. If Germany is embarking upon an economic war with us it may be necessary to defend ourselves by a tariff war against her, though such an act is contrary to the policy on which our commercial supremacy has hitherto depended, but tariffs are ultimately a form of taxation, and taxation with us has always been the function of Parliament alone. By this Bill, however, it is to a considerable extent transferred to a Government Department. The "Regulations" (to use a term with which we are sadly familiar) by which it will be worked are indeed to be laid before the House of Commons, but with this exception (and we chemists know what that is worth) the whole procedure under the Act, if the Bill becomes law, will be in the hands of official servants of the Government—the Bill in fact is another step, and the most important one yet taken, in the conversion of representative government into sheer bureaucracy.

Objectionable Features of the Bill :

One or two may be mentioned. The anti-dumping powers of the Bill include that of imposing a tariff on goods "below the prices at which similar goods can be profitably manufactured in the United Kingdom." Who is to define "profitably" here? What is profit? These are questions the answers to which are not easy. From Clause 3 (referring to the powers of the Board of Trade) in Part II. of the Bill it appears that if an order under this Section is laid before the House of Commons proceedings may be taken under the Act before the expiration of the twenty-one days during which the House has actually sat, and if the Order is afterwards annulled this will be "without prejudice to the validity of what has previously been done under the Order." Considering that the House sits for little more than a third of the year, this opens the door to grievous injustice. Other points might be brought forward for criticism, but these will serve as samples. It is fair to remember that this is only a temporary and tentative measure. It may have the effect desired, but unless it is improved before passing into law this will be at an unnecessary cost of many kinds.

Westminster Wisdom

of a particularly canny kind was shown by Mr. Montagu in his answer to Mr. Young's question respecting the "dumping" of American microscopes. Mr. Montagu, of course, knew perfectly well that microscopes are in the schedule to the Safeguarding of Industries Bill, but as it was inconvenient just then to admit the fact he referred Mr. Young to the Board of Trade for an answer to his question. Such tactics, though superficially smart, are not in the long run wise, as they impart an air of insincerity to the Minister's utterances. The rest of Mr. Montagu's reply reminds me of a story I heard many years since, to which, though I cannot vouch for its accuracy, the account given of this transaction lends credibility. A Birmingham firm of watchmakers sent a traveller to the United States to sell their goods. On account of the high tariff on such articles on the other side of the water, he could not compete with American makers. He advised his firm to import a quantity of watches from the States and re-export them. As they, being of American manufacture, would not be subject to duty, he could make a handsome profit when selling them much below the prices charged by American firms to their own people. His advice was followed with highly satisfactory results. The moral is obvious.

Miss Buchanan

makes a very poor defence of the expenditure of 40*l.* on the stall at the Chemists' Exhibition, but no good defence is possible. Had it been a condition of the gift of the site that the stall should be an ornate structure, that would have been a plausible excuse; but no condition whatever was attached to the gift. The promoters of the stall seem, however, to have argued that, having saved 50*l.* by this generosity, they were at liberty to spend 40*l.* in making a stall "worthy of our Society," forgetting that its object was to bring, not *kudos* to the Society, but cash to the Benevolent Fund. Miss Buchanan is anxious to assure us that not a penny is being wasted, and if the success of the stall depended upon its ornate structure, and its proceeds will increase in proportion to what is spent upon it, she is probably correct. I venture to say that 10*l.* judiciously spent would have better met the benevolent intentions of the promoters of the exhibition, been a more sincere compliment to the ladies working for the stall, and, last but not least, would have resulted in a much larger sum for the Fund. I also venture to say, further, that if the "impression that has got about" with regard to the stall is in any degree prejudicial to the Fund, the fault lies with those whose sanction and defence of this expenditure is responsible for the impression.

The Preservation

of the local associations in their present form, for which the Executive Committee of the London County Association contends, is the main object of all my notes on the subject, and I am glad to see a growing consensus of opinion in its favour. The attempt to make them organic branches of the Society is in one respect as unwelcome as the proposal to unite them in the same way with the Retail Pharmacists' Union: like that it would destroy their character as *local* associations. As at present constituted they have the freedom of action which is necessary to vigorous life, and they make an appeal to local feeling which they could not make as members of a body whose brain is in London. The fact that such connection with either body would entail the exclusion of many of their most loyal members is enough of itself to condemn the idea, and what reason is there for it? There is no more occasion now than there has always been for binding the associations more closely to the Society; there is no reason to suppose that they will ever be in less friendly relations with it, or less ready to support its policy; nor is there any reason to dread that their friendly adherence to the Society will injuriously affect their attitude to the Union. The whole difficulty seems to have arisen from the mutual jealousy of the two bodies, and with their leaders it rests to arrange a *modus vivendi* agreeable to both. It is not for me to say where the blame hitherto has rested, but both seem to have been over-anxious to secure advantage for themselves without much regard for the other; they must be judged by their readiness to come to an amicable settlement of the difficulty. The Society has only to agree to leave things as they are and the Union to abandon the idea of making its branches out of the local associations.

Tinct. Opii

in strengths outside the Dangerous Drugs Act may, according to the report of the Departmental Committee, be supplied to farmers for veterinery use without breach of Regulations, and, if to farmers for such use, to anybody for any use. It is apparently not known to the framers of these Regulations that before "laudanum" was made an official synonym for "tincture of opium" it was customary in at least some rural districts to make it of half the official strength, and that in such districts the opium-habit, which it is the object of these Regulations to prevent, was mainly acquired and maintained by the taking of this attenuated tincture. As regards opium, it is clear that these precious Regulations can be very easily evaded, and that they are no safeguard against the abuse of this particular drug. The legitimate uses of the drug are numerous, and the supply of tinct. opii "in strengths outside the Act" is not an evasion of the law.

"SANITAS" EMBROCATION

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An announcement of particular interest to you appears in this issue on page xvii.

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Editorial Articles.

A Dream of the Future.

THE President of the British Pharmaceutical Conference selects the above as the sub-title of his address at Scarborough, which we print in full elsewhere in this issue. Dreams sometimes come true; and, as Mr. Peck's vision is not so impossible as it would have been considered in pre-war days, there is no reason why advances should not be made on the lines he advocates. It must be remembered that, since Mr. Peck was President in 1915, the world has travelled as much space as it did in the preceding fifty years. Many of the projects in pharmaceutical education which were before the war looked upon as visionary have come to pass. What the effect will be upon pharmacy cannot be seen by the present generation, but Mr. Peck, who, in his position of educational expert to the Pharmaceutical Society, has had an exceptional opportunity of gauging the possibilities, evidently considers that further advances are possible in the near future. This survey passes over the earlier part of the President's address until the need of development in pharmacy is dealt with in connection with schemes which it is thought the Ministry of Health may bring out which would require a class of pharmacists trained in clinical analysis. It will be remembered that the report of the Ministry of Health Consultative Committee, published a year ago (see *C. & D.*, June 26, 1920, p. 190), recommended organisation of a revolutionary character in the medical treatment of sick persons which would involve enormous charges upon the finances of the country. Since then Dr. Addison, the Minister of Health, has been jettisoned by the Government, and the new Minister of Health (Sir Alfred Mond) accepts office on the understanding that schemes involving expenditure of public money shall not be undertaken. On this account we do not place much faith in the Ministry's report as a factor in developing pharmacy, but it is fair to add that this is only one of Mr. Peck's arguments for further organising pharmaceutical qualifications. His views are tinctured by his recent visit to the United States, and regarding American pharmacy training the President has evidently brought away a favourable impression. In particular, the fact that the schools and colleges of pharmacy are connected with universities has confirmed the view that Mr. Peck has long held as to the ideal state of education in pharmacy in this country. It must be borne in mind that Birmingham University School of Pharmacy has existed for some years, and that the University grants a degree in pharmacy. At Glasgow the success of the University scheme has not been so marked. Still, it is useful to let it be known that pharmaceutical education facilities here are in no way inferior to those of any other country. Mr. Peck expresses the opinion that the student registration examination should be of matriculation standard, that Part I. of the Qualifying examination should be of the standard for the London Inter-Science examination and the First M.B. He would not object to add "commercial science" as a new subject in the curriculum of the examination, but otherwise he would not at present extend the syllabus either for Part I. or II. of the Qualifying examination. The Major examination the President would convert into a Fellowship examination, which would entitle its holder to call himself "clinical analyst," "clinical pharmacist," or "registered clinical assistant" of the Pharmaceutical Society—this in view of the Ministry of Health scheme, which has now faded into the background. Mr. Peck makes a brave attempt to meet the demand for progress, but we think he does not sufficiently emphasise the fact

that within the past two years the advance has been very rapid, so that it is time to slacken the pace until some idea of the effect of recent changes can be seen. It is a coincidence, we believe, that Mr. F. G. Hines, a councillor of the Pharmaceutical Society, in a paper before the Practice Section, deals also with training of apprentices and the future of the Major examination. As it is not customary to discuss the President's address at the Conference, it may, owing to Mr. Hines' intervention, be possible to obtain the views of the members. Mr. Hines seeks to revive the ancient incentive which the Major qualification offered by converting it into an Honours examination, in which such subjects are taken as physiological chemistry, microbiology, pharmacy applicable to public health, and the Army, accountancy, and a knowledge of pharmacy in foreign countries. The task of suggesting subjects and curriculum for examinations for other people was ever a popular one, but we should like to hear the views of recently qualified chemists and druggists on this matter. Must it always be in pharmacy that the people well past the qualifying age should make the conditions for future generations? The Conference gives the opportunity for hearing the views of the younger men in pharmacy.

The Conference Papers.

The nineteen papers which were down for reading before the Science Section of the British Pharmaceutical Conference at Scarborough this week are mainly chemical in nature, but related to pharmacy. The papers on scammony resin, the keeping qualities of ergot, digitalis, and pituitary extract, and one on the nature of Irish moss mucilage, are the exceptions to the chemical papers. This has been the tendency of recent years, following the era when practical pharmacy and materia medica papers were in the ascendant. It should be understood that we do not refer to the papers as chemical in any derogatory sense. We regard it as proving our contention that we have ample justification to our historic title of chemist. The following summaries in the order in which they were read, may usefully be scanned before undertaking a more complete study of the papers reported in this issue. In a paper on *The Ether Solubility of Scammony Resin* Messrs. Harold Deane and W. E. Edmonton confirm the conclusions of a previous investigator that in testing the solubility of scammony resin the purity and proportion of the ether used influence the result, and also that even when a method is analytically satisfactory the results have no value as a test of the purity or quality of the resin. Optical rotation was found to yield results without practical value. The use of the colorimetric method, particularly for the determination of small amounts of certain substances, seems to be gaining in favour, as it presents distinct advantages over some of the more complicated processes of assay. In their paper, *The Determination of Formaldehyde and Paraformaldehyde in Tablets*, Messrs. Norman Evers and Charles M. Caines describe the use of a method based on the comparison of the colour produced by the addition of Schiff's reagent to a solution of a tablet containing formaldehyde with that produced by the same reagent on a standard solution of formaldehyde of known concentration until the colour of both is matched. This method presents the advantage that the result is not influenced by the presence of menthol, milk-sugar, or cane-sugar, usually present in these tablets. The important rôle played by the indicator in volumetric analysis is well known; however, while improvements in methods have been abundantly suggested, little has been done to determine the suitability of any given indicator in the presence of certain reactions. Mr. Norman Evers has made a study of the theoretical considerations underlying the use of various indicators under definite conditions, based on a consideration of the hydrogen ion concentration of the solution under examination. The determination of this factor, and its practical application, form the subject of his communication on *The Titration of Certain Alkaloids*, in which he shows from measurements of the hydrogen ion concentration and from practical experience that bromphenol is the most suitable indicator to use in the titration of morphine, atropine, and the neutral salts of quinine, while for the acid salts of quinine, methyl red is preferable. Messrs. C. T. Bennett and F. B. Windle, in a paper on *The Analysis of Theobromine and Sodium Salicylate*, point out that the Pharmacopœia directions for the assay of this salt are not satisfactory. The authors indicate modifications which will give results approximating to the theoretical composition. In the estimation of the theobromine, they suggest, a correction for loss should be given as in the United States Pharmacopœia, and for the estimation of the salicylic acid a titration method is recommended, loss by volatilisation being thereby prevented. In a note on *Liquefied Carbolic Acid* Mr. C. T. Bennett deals with the tendency of this substance to crystallise in cold weather, commented on by the late Mr. J. C. Umney in 1900. The author considers that the proportion of water should be further increased, so as to form a preparation that would liquefy at about 6.5° C. A liquid containing 50 grains of phenol in each fluid drachm might be even more convenient for dispensing-purposes. The official method for the determination of arsenic acid and arsenates is submitted to severe criticism in two valuable contributions dealing exhaustively with this subject. In both papers, one by Mr. R. Leitch Morris on *The Volumetric Determination of Arsenic Acid and Arsenates*, the other by Mr. C. E. Corfield and Miss Elsie Woodward on *The Quantitative Determination of Sodium Arsenate*, the authors have submitted the methods described by various authors in the literature to a critical examination, comparing the different processes and their modifications. The observations recorded in these two papers, and the conclusions drawn from the application of the various processes, form an interesting comparison and mark a further valuable contribution to analytical chemistry. Mr. A. J. Jones, Ph.C., gave a paper on *The Assay of Traces of Bromide in Saline Residues and in a Mixture of the Halogens*. After trying several methods Mr. Jones considers that the one outlined is the most satisfactory. It is based on Denigès' process, but differs from the original in most of the particulars. The bromide is liberated from a solution of the substance under examination by oxidising with permanganate, in phosphoric acid solution, in the presence of thymol blue as indicator previously rendered rose pink with sulphuric acid. Separation is effected by means of chloroform and the concentration of bromine in the chloroformic solution—determined by comparison with a series of previous prepared standards. In his paper on *The Determination of Nitrates in Bismuth Salts by Means of Titanous Chloride and Devarda's Alloy* Mr. Thomas McLachlan advocates the use of Devarda's alloy as a reliable method for the estimation of bismuth subnitrate, and suggests that it offers a convenient method of the estimation of nitrate in practically any bismuth salt, excepting those in which ammonia is present. It is easy of application, and has the advantage that a test may be completed in three-quarters of an hour with very little attention. No working method

for the *Determination of Small Amounts of Phosphate in Glycerophosphates* is described in the literature of the subject, therefore the process adopted with satisfactory results by Mr. J. L. Lizius, B.Sc., A.I.C., marks a valuable addition to analytical technique. His method is based on the colorimetric comparison of the colour of the solution obtained on testing a sample of glycerophosphate by the usual reaction for phosphate (nitric acid and ammonium molybdate) against a standard solution of phosphoric acid to which nitric acid and ammonium molybdate have been added. The content of phosphoric acid in the standard solution being known, the amount of phosphate present in the sample of glycerophosphate under examination is ascertained when the colour of the solution produced by the reaction matches exactly that of the corresponding standard solution. By this method it is possible to determine the presence of very small amounts of phosphate, and the author suggests as a reasonable limit a content of 0.1 per cent. calculated as phosphoric acid. On testing a number of pharmacopœial ointments in order to determine the amount of atropine or cocaine present, Mr. H. J. Foster found that the gravimetric method gave low results, which were not even concordant. In his paper on *The Assay of Atropine and Cocaine in the B.P. Ointments* he describes a method based on extracting the alkaloid present in the ointment with chloroform and $N/20$ sulphuric acid, and titrating with $N/20$ potassium hydroxide solution, using bromphenol blue as indicator, a process which gave accurate results and presents no difficulties in its practical application. Several brands of lysol have been examined by C. J. Jordan and F. Southerden for the purposes of establishing a method for *The Approximate Estimation of Commercial Cresol in Lysol.* The authors point out that, although it is generally agreed that lysol should contain 50 per cent. of cresol, a reputable make may be found to fall short of this standard. Their control process is fully outlined—with the caveat, however, that the limit of error is somewhat large. In a process devised for *The Assay of Colchicum by the Phospho-Tungstic Method* (Schiebler's reagent) Mr. E. C. Davies claims as advantages the purity of the alkaloid as compared with that obtained by the United States Pharmacopœia or by Farr and Wright's method, and the direct determination of colchicine as compared with Lyons' method. The process can be as easily and rapidly carried out as that of Farr and Wright. In spite of all the substitutes which have been suggested, digitalis still maintains its pre-eminent place in our materia medica. However, digitalis is a drug the activity of which is subject to natural causes beyond our control. Standardisation by chemical means being inapplicable, we are obliged to have recourse to physiological methods for assaying its activity. In his paper, *A Contribution to the Study of Digitalis*, Mr. Karam Samaan provides further valuable material towards an elucidation of this important subject. He describes the observations made in a series of investigations undertaken to establish the relative toxicity and the pharmacological action of infusions of digitalis of various concentration on the whole heart of the frog, and it is interesting to note that he is of opinion that whereas the fresh B.P. infusion is essentially a digitalein preparation, the concentrated infusions, prepared with 20 per cent. alcohol or with 0.1 per cent. chloroform water, are, like the tincture of digitalis, digitoxin preparations. With a view to deciding whether any defect in the B.P. method for the determination of cyanides is due either to the use of an excess of solution of ammonia or to an insufficient quantity of solution of potassium iodide, Messrs. C. E. Corfield and C. J. Eastland conducted a series of tests the results of which are embodied in their paper *On the Official Method for the Determination of Hydrocyanic Acid.* They found that an excess of ammonia does affect the readings, the latter increasing with the increased concentration of ammonia. On the other hand, an increase in the concentration of the potassium iodide does not appear to exert any influence, as long as the amount added is below 10 c.c. of the B.P. solution of potassium iodide. Although bismuth phenate is not extensively used in medicine, the fact that commercial samples of this compound were found to show a considerable variation in composition induced Messrs. C. E. Corfield and G. R. Boyes to submit samples to analysis, and also to investigate the method of preparation of this compound. Their results are embodied in their paper, *An Examination of Commercial Bismuth Phenate*, in which they also suggest a method of preparation which yields a bismuth phenate containing 14.76 per cent. of phenol, the maximum content which it was found possible to obtain. The use of Irish moss in the military hospitals at Malta during the war, the supposed beneficial action the drug has in certain diseases, and its probably increased use, have induced Dr. Paul Haas to present a paper on *The Nature and Composition of Irish Moss Mucilage.* The paper should be of particular interest in view of the fillip recently given to cod-liver oil in the treatment of diseases requiring vitamines. In his paper on the *Action of Heat and Moisture on the Activity of Ergot and Extractum Ergotæ Liquidum* Captain G. Tate, I.M.S., places on record the observation that whereas liquid extract of ergot suffers a loss in activity on exposure to heat, dry powdered ergot exhibits an increase in activity, which probably takes place during storage. He recommends that the liquid extract should be stored in a room the temperature of which does not exceed 80° F. *An Investigation of Some of the Factors which may Determine the Keeping Qualities of Infundibular Extract* formed the subject of another paper read by Captain G. Tate, I.M.S. He investigated the effects of light, heat, and acidity on commercial samples of infundibular extract. When sealed ampoules of infundibular extract were exposed to the action of Finsen light, and of mercury vapour light, no difference in activity was ascertainable. On the other hand, he found that an infundibular extract would stand boiling for half an hour without any appreciable loss of activity, but on testing samples of the same make which had been stored in India for some months an appreciable loss of activity was found to have taken place. The author concludes from this fact that exposure to heat for a prolonged period is responsible for the deterioration which takes place on storage in a tropical climate, by rendering the protein complex more liable to dissociation. He advises that such preparations should be stored in such a way as to avoid exposure to a temperature above 80° F. It remains to refer to Mr. Herbert Skinner's paper in the Practice Section (Mr. Hines's paper having been mentioned above). This dealt with the question of costing systems, and, being by the compiler of the London Chemists' Retail Price List, was of a nature well fitted to be presented to this section of the Conference. The paper reviewed the subject of costing as it has been applied to pharmacy, the chief novelty, so far as we can see, being the suggestion of the chart of the daily returns of a business with a red line indicator of the progression or retrogression of the business compared with a standard. We are glad to see the warning not to instal such an elaborate costing system that there is no time left to transact the ordinary business of the pharmacy.

Foreign Trade Decline.

THE Board of Trade returns for the month of May, published after the close of last week's issue, reflect to a marked extent the severity of the blow which the coal stoppage has inflicted on the country's trade, there being a very heavy decline in both imports and exports. The imports totalled 86,308,308*l.*, a decline of 80,105,724*l.* in value, compared with May 1920; the imports of food, drink, and tobacco being down 15 millions, raw materials almost 44 millions, and manufactured goods 2¼ millions sterling; imports of coal last month were valued at over 1½ million. The exports last month were valued at 43,088,418*l.*, and re-exports at 7,231,836*l.*, representing decreases of 76,231,004*l.* and 13,028,242*l.* respectively, compared with the figures of May last year. The reduction in coal exports accounted for over 8½ millions, while the shipments of manufactured products showed a decrease of 62 millions. In the following table we show the progressive decline in our foreign trade, which practically set in at the end of last year :

000's omitted.

MONTH.	Imports.		Exports (British)		Total exports (including re-exports)	
	1920	1921	1920	1921	1920	1921
	£	£	£	£	£	£
January ...	183,343	117,051	105,880	92,756	131,344	102,711
February...	170,435	96,974	85,964	68,222	108,568	76,226
March ...	176,567	93,742	103,699	66,809	130,731	75,697
April ...	167,130	89,996	106,252	59,868	126,659	68,391
May ...	166,414	86,308	119,319	43,088	139,580	50,320
Total ...	863,889	484,071	521,114	330,743	636,882	373,345

The above table shows at a glance that, during the earlier months of the year, the drop in imports was larger than in exports, but even that comforting feature is denied us, as the reverse is the case now. On the other hand, perhaps it is consoling to reflect that our food purchases were almost 15 millions less than in May last year, there being a large falling-off in imports of sugar, tea, cocoa, coffee, wines, and tobacco, these being all dutiable articles. The existing stocks in bond of these products are much higher than the pre-war quantities, and we should not be surprised to see further reductions in imports again this month. Raw cotton declined in value from 15,832,000*l.* to 3,756,000*l.*, the actual quantity received being only about 23 per cent. less at 802,500 centals, against 1,053,000 centals. Oil seeds and the like shrank from 9 millions to 3⅓ millions, while of chemicals, drugs, dyes, and colours the imports were only 842,300*l.*, representing a decline of 1,658,000*l.*, compared with May last year. Many of the industrial chemicals in this group were affected, the largest decline being in sodium nitrate, potassium compounds, unspecified chemicals. Crude glycerin is being imported in gradually increasing quantities, and calcium carbide shows much larger receipts; dyes and dyestuffs have fallen materially. Apart from cinchona, there was a decline of 168,000*l.* in crude drugs, medicines, and medicinal preparations. On the export side, the general paralysis of business is indicated by the drop of 62 millions odd in manufactured goods, apart from an inevitable decline in coal of 8,611,000*l.*; so far this year the melancholy fact has to be recognised that we have lost 31½ millions sterling on coal. Cotton goods declined by 28,721,000*l.*, compared with May 1920, when the boom had not yet spent itself. There was also a drop of 2,383,000*l.* in chemicals, drugs, and allied products, the total reaching 1,080,417*l.* only. The shrinkage is, of course, spread over the whole schedule, some of the more interesting figures being as follows :

		1913	1920	1921
Ammon. sulphate ...	tons	26,359	7,111	6,109
Bleaching powder ...	cwt.	71,736	51,908	4,803
Coal-tar products ...	£	143,822	233,885	50,211
Copper sulphate ...	tons	12,759	1,420	1,761
Glycerin	cwt.	39,641	34,327	5,710
Potash compounds...	£	21,093	75,725	19,029
Soda compounds ...	cwt.	566,364	798,445	232,403
Drugs and medicines	£	204,185	450,456	153,409
Dyes and dyestuffs...	cwt.	14,728	30,070	7,007
Painters' colours ...	,,	219,237	115,926	60,416

Even making a substantial allowance for reduction in values, the above figures reveal a steadily increasing shrinkage in actual volume or quantity. It is hoped that we have now reached the bottom of the trade slump, but until our industrial troubles are settled on a sound and lasting basis, and the resumption of foreign buying takes place, there is not much hope of a substantial improvement.

Examination Passes.

PARAGRAPHS have appeared in some of the London papers regarding what is suggested is the intentionally low pass rate of ex-Service men at the Qualifying examination of the Pharmaceutical Society of Great Britain. "Truth," for instance, in its issue for May 25, printed the following :

Reference was lately made in "Truth" to the number of ex-Service students who have passed examinations, in many cases with distinction, in law, architecture, engineering, and accountancy. My attention has since been called to the very different results shown in the Pharmaceutical Society's examinations. Only nineteen men passed the whole examination out of 129 candidates, who contained a substantial number of Government-trained ex-Service men. This result derives further significance from the results of the examination held last July, when several hundred ex-Service men sat, and only 33 per cent. of the candidates were admitted to the Register.

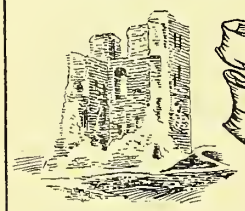
The gentleman who gives me these facts regards them as the outcome of a settled policy on the part of the Pharmaceutical Society to restrict the Register of "Chemists and Druggists" in the interest of those already in business. In other words, the attitude of the Society towards newcomers is like that of the building trade unions. Without going into the merits of this policy, it seems to me that the Minister of Labour, who, as I understand it, is responsible for the training of candidates, ought to lose no time in coming to an understanding with the Pharmaceutical Society on the subject.

I am informed that something like 1,500 ex-Service men are at present in training for the Society's July examination, and a similar number may be expected next year. The training costs the country a big sum, and the taxpayer also pays, through the Ministry of Labour, 10*l.* in fees for each candidate who sits, which, on the above basis, means 15,000*l.* this year. It is outrageous that all this money should be expended if the Pharmaceutical Society does not mean to admit more than a small fraction of the men into practice, and the outrage is aggravated beyond endurance when the Pharmaceutical Society is paid by us 10*l.* a head for refusing to admit the men we have trained. I hope that some M.P. will take an early opportunity of ascertaining whether Dr. Macnamara is alive to this scandal.

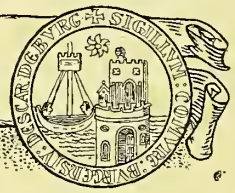
This evidently refers to the passes at the April examination, particulars of which were printed in the *C. & D.*, April 16. "Truth" evidently takes correspondents' statements on trust. Very little effort would have shown that the protest is founded on a misreading of the results. The actual figures of passes were : London, Part I., 96, Part II., 80; Edinburgh, Part I., 49, Part II., 50. The number of candidates was : London, 316; Edinburgh, 131; but how many of these are ex-Service men whose fees were paid by Government grants we do not know.

THE Czecho-Slovak "Apotheker Zeitung" informs its readers that black candles are the latest fashion in England, and on account of the yellowish-white light they give afford such striking effects that they are being used by all experts in lighting who wish to produce special lighting effects.

BRITISH PHARMACEUTICAL CONFERENCE

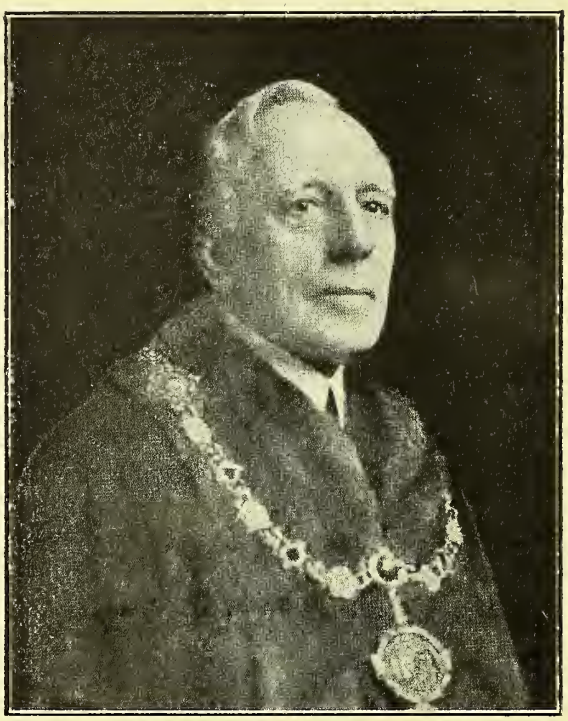


SCARBOROUGH



Report of Proceedings.

THE invigorating coolness of the Scarborough air on Tuesday morning left no doubt in the minds of those who filed into the handsome Conference-room at the Grand Hotel at half-past nine that the Conference was being held in ideal surroundings. The gathering, if not quite so large as that of last year, was equally representative. On the platform table stood three three large vases filled with flowers—a pleasing addition to the amenities of the Conference, inspired, no doubt, by the energetic ladies' Committee. The President (Mr. E. Saville Peck) had on his right the Mayor of Scarborough (Alderman M. T. Whittaker), the town clerk (Mr. Sidney Jones), and the general secretaries of the Conference (Messrs. R. R. Bennett and C. H. Hampshire). On his left were Mr. F. Ransom, Mr. C. A. Hill, Mr. D. Lloyd Howard, Mr. E. White, and Mr. F. P. Sargeant. The opening ceremony was brief and cordial. Without preface the President called upon the Mayor, and those who had had the pleasure of listening to his Worship's informal welcome on the previous evening were prepared for the eloquent and humorous speech with which he inaugurated the proceedings. There was, naturally, a good deal in it about Scarborough, but his Worship surprised most of his hearers by the extent of his knowledge of personalities connected with pharmacy. It was news to most of them that the late Mr. Henry Lamplough was apprenticed in Scarborough, and they were pleased to hear that the pioneer of outdoor photography in the town was a chemist. Speaking from personal experience, the Mayor said that no business man knows more of the value of advertising than the chemist—which also was good hearing. Frequent ripples of laughter greeted the spontaneous sallies in which his Worship is evidently an adept, and when he slyly remarked that the visit of the Conference is to be followed by a conference of undertakers, the laughter rose to a roar. Having thanked the Mayor in a few neatly turned sentences, the President, on the stroke of ten o'clock, plunged into his address. (This is printed in full on pp. 46-50.) Thoughtfuly planned and felicitously phrased, it was followed with keen attention and was loudly applauded. Before he had proceeded far, the President suggested that more windows should be opened, the result being that many of his hearers listened while watching the numerous small craft on the sea—another pleasant innovation to be remembered. Messrs. F. Ransom and C. A. Hill respectively moved and seconded the customary vote of thanks in brief and well-chosen sentences, and the President replied. A majority of those present then trooped out into the sunshine, and those who remained (including a few ladies) settled down to the business of the Conference. The list of delegates was not read, as it usually is, but no one seemed a penny the worse. The proposal to send a telegram of sympathy to Mr. E. M. Holmes, who was among the numerous absentees, was adopted amid cordial applause. The reading of the treasurer's report was followed by an amusing divergence in the views of two Sheffield delegates, Messrs. Antcliffe and Appleton—the former indicating that the adverse balance was not a very serious matter, and the latter boldly advocating the cutting down of the supply of Year-books. Mr. Appleton's suggestion that many of the Year-books were never opened was received with cries of "No, no!" and the speaker who followed next declared that he had a complete set. The report of the Harrison Memorial Fund joint committee was received without comment. The paper in Tuesday morning's session that excited the highest praise was that of Mr. Norman Evers on "The Titration of Certain Alkaloids," all the participants in the discussion agreeing that it was an important piece of work. Discussion, as a rule, was brisker than is frequently the case—possibly another tribute to the air of Scarborough. After the luncheon, at which 308 were present, the President caused a mild sensation by ringing a large hand-bell to summon the faithful to the afternoon meeting of the science section, but counter-attractions proved very strong. Seven papers were read (or summarised) and discussed in the space of forty minutes, and the section—with an eye on the sea—then unanimously agreed to adjourn till the next morning. Brevity is apparently the soul of Scarborough.



ALDERMAN MEREDITH T. WHITTAKER, MAYOR OF SCARBOROUGH.

Tuesday Morning.—June 13.

Opening Session.

The President, who was received with loud applause, at once called upon the Mayor of Scarborough to address the Conference.

The Mayor, who was accompanied by the Town Clerk and was introduced by the President, delivered an excellent address characterised by many witty points. He said:

It affords me very great pleasure to extend to you a most hearty welcome in the name of the Corporation and burgesses of this ancient town. We hope by the conclusion of the Conference that there will be nothing lacking in your programme, in the welcome given to you, or in what you see during your visit, to regret the decision you arrived at at your last Conference to come to Scarborough. (Applause.) During the week-end there has been much wishing in this borough. Allotment-holders and those interested in gardening have been desiring that rain should fall upon the land, but the local committee of your Society have been desiring that there should be no rain, at least until the conclusion of this Conference. (Laughter.) You must, I think, feel that your local committee have had greater influence upon the Clerk of the Weather than the allotment-holders. (Laughter.) What may be the result after this morning I cannot say, but I hope that those who have been wishing so successfully will continue to wish until the Conference is over. (Applause.) I have been thinking that the Clerk of the Weather takes an interest in your Society, because if it were not for the vagaries of the weather your sales would not amount to what they do. Indeed, I think that the Clerk of the Weather is one of your best salesmen. (Laughter.) You belong to a section of the nation to which I think it may be accorded that it is one of the most unselfish and which serves the people with very little reward. The medical men of this country give of their time and of their talents to relieve the suffering and improve the health of the community, perhaps to an extent that no other section of the community serves the nation. Their time is ever, day and night, available to the community. And you are associated with, and a section of, the medical profession. It is probable that in the last century there has not been as much progress in anything connected with the country as with medicine and the work of the medical men of this country. The advance in surgery has been something enormous. There has been much legislation in the interests of the medical profession, your personal interests, and also in the interest of the community. When we read of what was the position in the eighteenth century we find that the change has been enormous. Early in the nineteenth century surgeons were associated with the barbers and the chemists with the grocers. That is not so to-day. And in looking at some of the old newspapers of the eighteenth century I find that much of the advertising space was occupied in the advertising of remedies for the ills the people were suffering from, and in nearly every case it was stated that these could be obtained from the vendors of patent medicines, not from the chemists. In nearly every town there were printers or newspaper proprietors who issued a leaflet in doggerel that many of you would condemn. That was so in our own town, where a stationer put in doggerel what he had to sell. In my boyhood days some medical men had a very large practice and also a chemist's shop. Those were the days of the apothecary. Times have changed, but chemists in Scarborough have always been men distinguishable from the ordinary tradesmen in the town—men of strong personality. I think I am correct in saying that the first man who gave attention to outdoor photography was Mr. Beckett, a Scarborough chemist, who afterwards went to York. Then there was Mr. Lamplough, who made himself a position in London. He was an apprentice in Scarborough, having connected himself with the trade in the first instance with an old Scarborough firm. I am personally interested in the Press, and you will excuse my saying that I think there is no business, no undertaking, that knows more of the value of advertising than that which you represent—the chemists. (Laughter.) Yet fewer chemists than men in any other trade avail themselves of the opportunities of advertising. Take the case of proprietary medicines. It must come home to you that advertising pays. I have known myself of some well-known proprietary articles which directly they ceased to be advertised also ceased to sell. I wonder how many boxes of Holloway's pills will be asked for over the counter nowadays. (Laughter.) And the same applies to Morrison's pills. These facts show the great advantage of advertising. As I mentioned last night, I am an advertising agent for the borough—(laughter)—and I believe strongly in it, and if your friends cannot get the old pink pills tell them to come here and get pink cheeks from the ozone. (Laughter.) You are in a county that has a history, the county of broad acres. You are situated between the wolds of Yorkshire and the moors of Yorkshire. It is a district noted for the breeding of horses, for the Yorkshire colt has always been celebrated. Our moors have untold wealth in them, and add greatly to the wealth of the country. Some of you may go, during your stay, to Hackness and Forge Valley. For very many years the Valley was the only iron-producing part of the county, and that is what gives it its name, a fact which may be of historical value to you. In connection with the subject of conferences there is a matter which may be rather amusing to you. Within a fortnight it will be my duty to welcome the British undertakers. (Laughter.) Whether they are coming to bury the dead I know not, but I take it that it is only an accident. (More laughter.) But a fortnight will be sufficiently long to see whether the community is going to suffer. Our medical officer of health informed the members of the Council last week that we have never had a cleaner bill of health for many years past than to-day. So if the British undertakers are coming here to bury the dead they will find that there are few to bury. (Laughter.) I hope that your visit will be an interesting one, and that the Conference will result in very great advantage to those whom you represent. (Applause.)

The President: I am sure we are all grateful to the Mayor for his delightful, humorous, and historical welcome. Last evening we had the pleasure of meeting him and the Mayoress, and we take this opportunity of thanking them for their delightful reception. (Applause.) I am quite sure that I can tell him in your name that he really need not advertise Scarborough as a health resort, for we already feel more lively and better for the few hours we have been here. We know of the glories of the town, and we are going to enjoy them this week. You will realise, however, Mr. Mayor, that we have other work to do, and will understand that the length of my remarks in thanking you is in inverse ratio to the gratitude we feel for your welcome. (Applause.)

President's Address.

The President then delivered his address, which is printed in full on pp. 46-50.

Votes of Thanks.

Mr. F. Ransom proposed a vote of thanks to the President "for his most interesting and instructive address." His association with Mr. Saville Peck perhaps made it more suitable, he said, that he should perform such a duty. In all that he had to do the President's energy and tact had been supreme and had resulted in the great success which had attended his efforts in whatever position he had been engaged. (Applause.)

Mr. C. A. Hill, a Past-President, in seconding the vote of thanks, said that he accepted with the greatest possible pleasure the invitation to do so. Any man who gave a presidential address was deserving of pity; any man who gave one so suggestive and illuminating as the one delivered that day was deserving of hearty thanks. (Applause). Mr. Peck had made a real endeavour to crystallise the colloidal question separating the purely professional from the purely business side of pharmacy, and he was qualified as perhaps no one else to address the members of the British Pharmaceutical Conference on this and cognate subjects forming the basis of his admirable address. It was an address which was full of

ideas not only illuminating and suggestive but also useful and practical, and it was one which they would all read with as much pleasure as they had had in listening to it. (Applause.)

The PRESIDENT briefly acknowledged the vote of thanks.

The Mayor and Town Clerk left at this stage, the whole company standing and applauding as they did so.

APOLOGIES FOR ABSENCE.

It was announced that apologies for absence had been received from the following: Mr. E. T. Neathercoat, Mr. E M. Holmes, Mr. W. F. Wells, Mr. Robert Wright, Dr. G. Claridge Druce, Professor Smithalls, Professor Morgan, Miss Buchanan, Mr. F. C. J. Bird, Mr. F. Southerden, Mr. T. Guthrie, Mr. C. Davis, Mr. William P. Evans, Mr. A. R. Melhuish, Dr. Martindale, Dr. Hooper, Mr. C. E. Corfield, Mr. F. Browne, Dr. C. Symes, Mr. E. H. Farr, Mr. William Kirkby, Mr. J. Righton, Mr. W. F. J. Shepheard, Mr. W. F. Hay, Mr. P. F. Rowsell, Mr. W. L. Currie, Mr. E. T. Brewis, Mr. W. G. Hughes.

On the motion of the PRESIDENT, it was agreed, amid applause, to send a telegram of sympathy to Mr. E. M. Holmes, detained at home as the result of his accident.

LIST OF DELEGATES.

Contrary to custom, the list of delegates was not read. It included the names of representatives from the Pharmaceutical Society of Great Britain, the Pharmaceutical Society of Ireland, and the following Associations: Birmingham, Ealing, Hull, Liverpool, London (County), London (North), London (South-East), London (Western), Manchester, Middlesex, North Devon, Northumberland, Nottingham, Oxford, Portsmouth, Public Pharmacists, Scarborough, Scarborough Junior Pharmacy Club, Sheffield, South Wales Federation, Wallasey, West Riding, Wolverhampton.

EXECUTIVE COMMITTEE'S REPORT.

The annual report, read by Mr. C. H. HAMPSHIRE, was as follows:

During the past session your Executive Committee has held five ordinary meetings and one special meeting. A meeting of the research sub-committee has been held to revise the research list, and other sub-committee meetings have been held for special business.

The total number of members on the Register is now 1,055. Since the last annual meeting eighty-four new members have been elected. The Executive regrets to record the deaths of twelve members, of whom two were honorary members.

Mr. A. G. Surfleet has been appointed local corresponding secretary for Hull, and Mr. H. W. Thomas, of Calcutta, has been appointed honorary secretary for Bengal.

In the last annual report reference was made to the draft scheme for pharmaceutical research, submitted by Mr. William Kirkby. The Executive has to report that a joint meeting of the Conference research sub-committee and delegates from the Council of the Pharmaceutical Society was held in October 1920, at which the following resolution was passed:

> That the present position of pharmaceutical research in this country is unsatisfactory, and that an interview should be sought with the Ministry of Health with the object of eliciting their views upon the establishment of a scheme of pharmaceutical research.

A letter embodying this resolution was forwarded to the Ministry of Health, and the receipt of this was acknowledged by Dr. Addison's private secretary, but no further communication has so far been received.

A number of meetings of the Harrison Memorial Fund joint committee, composed of members of the Council of the Pharmaceutical Society and the members of your Executive, have been held, and this matter forms the subject of a separate report.

The balance-sheet, with receipts and expenditure for 1920, has been circulated to members, and will be referred to by the honorary treasurer at this meeting. In this connection the Executive desires heartily to thank the Liverpool Committee for a generous gift of 56*l.* 15*s.* 2*d.* from the surplus of their Conference funds.

The Year-Book of Pharmacy for 1920 contains rather more than 600 pages, of which 347 pages are occupied by abstracts. The total cost of printing, publishing, binding, and distribution amounted to approximately 575*l.* A sub-committee was appointed in April last for the purpose of discussing plans for effecting economies in the cost of the Year-Book, which during the past few years has proved to be a serious charge upon the financial resources of the Conference. The sub-committee has given careful consideration to a number of suggestions, and a report containing recommendations which it is hoped will reduce the cost without lessening the value of the book has been submitted and approved by the Executive.

The Executive are very pleased to report that at the present meeting an invitation will be given by the Nottingham Pharmaceutical Association to hold the annual meeting of the Conference in Nottingham next year. The cordial thanks of the Conference are again due to the Council of the Pharmaceutical Society for kindly providing a room for the meetings of the Executive Committee, and also for presenting reprints of the papers to be read at this meeting. In the latter connection our best thanks are also due to the editor of the "Pharmaceutical Journal and Pharmacist."

Mr. F. P. SARGEANT moved the adoption of the report, and remarked incidentally that the Council of the Pharmaceutical Society has in hand the matter of research, and that of revision of the pharmaceutical scholarships.

Mr. J. JACK briefly seconded, and the report was adopted.

TREASURER'S REPORT.

The annual financial report, presented by the TREASURER (Mr. D. Lloyd Howard), showed that the adverse balance has increased from 157*l.* 2*s.* 7*d.* (last year's figure) to 239*l.* 13*s.* 8*d.* The report is summarised as follows:

Income: Subscriptions, 565*l.* 8*s.* 2*d.* (last year, 456*l.* 17*s.* 9*d.*); sales of "Year-book," 49*l.* 3*s.* 2*d.* (last year, 38*l.* 6*s.* 8*d.*); advertisements in "Year-book," 76*l.* 2*s.* 6*d.* (last year, 74*l.* 9*s.*); surplus funds received from the Liverpool Committee, 56*l.* 16*s.* 2*d.*; total, 747*l.* 10*s.* (last year, 617*l.* 19*s.* 3*d.*). Expenses: "Year-book" (printing, publishing, editor's honorarium, etc.), 673*l.* 3*s.* 8*d.* (last year, 548*l.* 10*s.* 4*d.*); advertising costs, 25*l.* 19*s.* 11*d.*; secretarial expenses, 45*l.*; postage, etc., 24*l.* 19*s.* 5*d.*; printing, etc., 44*l.* 4*s.*; other items, 16*l.* 14*s.* 1*d.*; total (including deficit of 157*l.* 2*s.* 7*d.*), 987*l.* 3*s.* 8*d.* The financial statements of the Bell & Hills Fund and of the Conference Research Fund were also included in the report.

The TREASURER, in presenting the report, drew attention to the increase in the adverse balance. Mr. Lloyd Howard held out some hope of a reduction in the cost of printing, but repeated his request of former years that all those members who were able would voluntarily increase their subscription to at least 1*l.* 1*s.* The Bell & Hills Fund, he pointed out, was in a healthy state, and the item of 18*l.* 12*s.* standing as assistance for research was still untouched.

Mr. JOHN D. MARSHALL moved the adoption of the report, and expressed the hope that the deficit would soon be made up.

Mr. H. ANTCLIFFE, in seconding, expressed the view that, after all, the adverse balance did not represent a very great loss.

Mr. J. T. APPLETON pointed out that it is the Year-Book that has caused the deficit, and suggested that in future it should not be sent to every member of the Conference. The larger number of these books, he added, were not opened. ("No, no!") He thought that a copy might be sent to each of the local associations.

Mr. T. MALTBY CLAGUE said that he had not intended taking any part in the business proceedings, but he could not allow the statement that many Year-Books were not opened to pass without protest. "I don't believe a bit of it," he remarked emphatically, adding that he himself had a complete set of the Year-Books.

The report was adopted, and Mr. Hampshire then read the report of the

HARRISON MEMORIAL FUND.

The Joint Committee of the Pharmaceutical Society and the British Pharmaceutical Conference, constituted for the purpose of suitably perpetuating the memory of the late Edward Frank Harrison, received from various contributors throughout the country the sum of 565*l.*, and at its meeting in February last it was resolved that the amount should be allocated as follows:

(1) A sum not exceeding 200*l.* for the provision of a medallion plaque to be presented to the Pharmaceutical

Society for permanent emplacement in the premises of the Society.

(2) A sum which should be sufficient to provide in trust for an annual medal, to be known as "the Harrison Memorial Medal," to be given to a qualified pharmacist of not more than five years' standing, whose contribution to the chemistry of drugs shall be deemed to be the most important of the year.

(3) That the remainder of the subscriptions received be invested in trust, and the income applied in such a way as may be deemed most fitting for the purpose of perpetuating the memory of E. F. Harrison.

The foregoing resolutions have been acted upon, and the medallion plaque is in process of execution. . . . The Council of the Society has been good enough to accept the suggestions of the Joint Committee and to allot a place for the memorial in the examination-hall. With regard to the investment of the subscriptions, it has been resolved to ask the Pharmaceutical Society to act as the trustees and to nominate three members of the Society, in association with three members nominated by the British Pharmaceutical Conference, to form the adjudicating committee to make the awards. The necessary trust deed is now being drawn up, and we have to acknowledge the indebtedness of the Committee to Mr. Kirby, of Messrs. Neve, Beck & Kirby, for his kindness in offering to undertake the requisite drafting. Care will be taken in the deed to vary the conditions of the award if occasion should require, but the variations are to be always consistent with the objects of the trust.

The report was adopted without discussion.

Before the science papers were taken the President announced that one copy of the official book of proceedings per member was obtainable on application.

Science Section.

The first paper read at Tuesday morning's session was :

The Ether Solubility of Scammony Resin.

By HAROLD DEANE, B.Sc., and W. E. EDMONTON.

[ABSTRACT.]

THE authors, after following up a statement that certain specimens of scammony resin did not comply with the solubility requirement of the B.P., agree with the conclusions arrived at by M. P. Guiguès ("Journ. de Pharm. et de Chimie," 1900 [6] 11, 529; 1906 [6] 24, 404, 440, 498). These were that the purity and proportion of the ether used had a great effect on the result, and that even when a method analytically satisfactory has been adopted the results have no value as a test of purity or quality of the scammony resin. In the tabulated results of their preliminary experiments it was shown that the larger the quantity of ether used the less resin is dissolved; also that digestion for, at least, forty-eight hours is necessary. In further experiments, therefore, it was decided to use

Sample	Percentage insoluble in 0·720 ether			Percentage soluble in 0·720 ether		
	C	G	A	C	G	A
1	16.20	17.10	9.21	83.80	82·90	90.20
2	3.90	3.63	2.44	96 10	96.01	97.19
3	22.70	23.78	20.18	77.30	75·55	78.95
4	17.60	20.50	6.68	82.40	79.40	93.30
5	5 00	12.04	3.92	95.00	87.90	96.00
6	—	37.90	9.68	—	62.00	90.10
7	—	22.91	11.90	—	77.05	88.02
8	—	33.87	14.62	—	66.20	85.30

Sample	Percentage insoluble in U.S.P. ether			Percentage soluble in U.S.P. ether		
	C	G	A	C	G	A
1	5·26	5·20	2·79	94·74	94·60	96·89
2	1·90	2·34	1·70	98·10	97·64	98·20
3	3·80	7·32	3·82	96·20	92·10	95·40
4	2·00	2·10	1·77	98·00	97·90	98·09
5	2·60	2·90	2·90	97·40	97·10	97·10
6	—	—	—	—	—	—
7	—	—	—	—	—	—
8	—	—	—	—	—	—

10 c.c. of ether and digest for fifty-six hours. As the U.S.P. requires not less than 95 per cent. solubility in ether, and as U.S.P. ether is described as "containing not less than 95.5 per cent. nor more than 97.5 per cent. of ethyl oxide, the remainder consisting of alcohol containing a little water," U.S.P. ether was employed. E'We ("J. Amer. Pharm. Assoc.," 1920, 9, 410) overlooked this point, and using 0.720 ether concluded that it is impossible to obtain scammony resin to pass the U.S.P. test. The table (above) shows that this is incorrect, though the U.S.P. requires resin prepared from *Convolvulus Scammonia*, an article practically unprocurable. Three methods were followed, namely : Cowie's ("Y. B.," 1908, 448), Guiguès' ("Y. B.," 1907, 145), and the authors'. The table gives the results of examining five samples of resin by these three months (C., G., and A.) with pure ether and with U.S.P. ether. The ether used was washed with water, dried, and redistilled, and the results obtained with sample No. 1 show that even the small amounts of impurities present in commercial B.P. ether have an appreciable effect on the result. The results are calculated to the anhydrous resin, the moisture being separately determined. Optical activity did not appear to be of much value. The samples were prepared on the manufacturing scale from Mexican scammony root by Stafford Allen & Sons, Ltd., in whose laboratory the experiments were carried out.

DISCUSSION.

Mr. RANSOM pointed out that the British Pharmacopœia says "ether," not "purified ether." Both are of s.g. 0.720, and it would appear that some alteration in the B.P. description is necessary. He himself had obtained varying results from the same sample of scammony.

Mr. C. A. HILL remarked that the results would necessarily vary according to the purity of the ether used, and asked whether there was any objection to using the resin in powder mixed with sand and exhausting in a Soxhlet's apparatus.

Mr. DOTT also agreed that it was very important that the ether should be of a definite purity, and added that official ethers had got into a state of confusion. Ether of s.g. 0.720 might still contain alcohol. Too much importance may, perhaps, have been attached to solubility as a test.

Mr. FINNEMORE suggested that the B.P. test for scammony resin is so lacking in detail as to be of no value, and appealed to Mr. Hill, as a member of the revision committee, as to its exact meaning.

Mr. HILL, in reply, said that the B.P. process had given very concordant results years ago.

Mr. FOURACRE inquired whether commercial ether was really a solvent. If anæsthesia, as some observers held, was caused by the impurities present in ether, were its solvent properties also due to them?

Mr. SLACK asked why a greater amount of the resin was dissolved by a small amount of ether than was extracted by a larger quantity?

Mr. DEANE, replying on the discussion, admitted that he had not tried Mr. Hill's method. The sand referred to might, of course, obviate the drawback of the formation of a sticky mass. Commercial purified ether gave a different result from a specially purified ether. In answer to Mr. Slack's question, the same phenomenon occurred in other cases—e.g., in extracting cascara bark, in which case a strong percolate took up more than water did.

The PRESIDENT expressed the thanks of the section to the author.

The next paper was :

Assay of Formaldehyde and Paraformaldehyde in Tablets.

By NORMAN EVERS, B.Sc., F.I.C., and CHARLES M. CAINES, F.I.C.

[ABSTRACT.]

FORMALDEHYDE or paraformaldehyde is now very generally employed in the form of tablets, and a need was felt for a rapid and accurate method for their determination.

The authors found that the method described by Hampshire and Furnival failed to yield satisfactory results.

The use of the colour produced by Schiff's reagent suggested itself, and after a number of experiments the following method was adopted :

A weighed quantity of 0.2 gram powdered fuchsin was ground up in a small mortar with 10 c.c. distilled water, the solution poured off and sulphur dioxide gas passed through it to complete saturation. After standing for twenty-four hours the liquid is diluted with distilled water to 200 c.c.

A tablet is weighed, and transferred to a flask holding about 250 c.c.; 200 c.c. of distilled water is added, and the mixture boiled under a reflux condenser for thirty minutes. This is necessary in order to convert any paraformaldehyde which may be present into formaldehyde. At the end of this time the contents of the flask are allowed to cool, the condenser washed down with distilled water, and the liquid diluted to 500 c.c. About 50 c.c. of this solution is filtered. A standard solution of formaldehyde is prepared by diluting 1 c.c. 38 w/v formaldehyde solution to 1,000 c.c.

1 c.c. of this solution = 0.000038 gram formaldehyde.

A series of standards are prepared in ten test-tubes taking quantities of 0.1 c.c. to 1.0 c.c. of the standard solution and diluting to 10 c.c. with distilled water. 10 c.c. of the filtered tablet solution is taken in another test-tube. A second rack, containing an equal number of test-tubes of uniform bore, each containing 2 c.c. Schiff's reagent, is then prepared. The contents of the tubes in the first rack are then poured as quickly as possible into the tubes holding the Schiff's reagent and immediately mixed thoroughly. After three minutes the colours are sufficiently developed to enable a match to be made. The amount of formaldehyde in grams in the tablet = number of c.c. standard solution required × 0.019. The method was tested on paraformaldehyde by taking 0.0050 gram and treating by the above method. Two results gave 0.0045 and 0.0047 gram formaldehyde. The addition of milk-sugar, cane-sugar, or menthol did not affect the results. A number of samples were obtained as far as possible representative of the formaldehyde and formaldehyde and menthol tablets at present on the market. The results are embodied in the following table :

No.	Schiff's Reagent				Distillation Method			
	Weight of Tablet		Weight of Formaldehyde found		Weight of Tablet		Weight of Formaldehyde found	
	grms.	grains	grms.	grains	grms.	grains	grms.	grains
10867	0·8265	12·73	0·010	0·154	0·8265	12·73	0·006	0·092
	—	—	—	—	0·8190	12·61	0·005	0·077
10998	1·023	15·75	0·005	0·077	1·023	15·75	0·003	0·046
	—	—	—	—	1·091	16·80	0·003	0·046
11670	1·020	15·71	0·003	0·046	1·079	16·61	0·004	0·061
11858	0·982	15·12	0·011	0·169				
11859	0·896	13·80	0·004	0·061				
11860	1·010	15·55	0·009	0·138				
11861	0·910	14·01	0·008	0·123				
11862	0·903	13·91	0·003	0·046				
11863	0·690	10·63	0·002	0·031				
11864	0·791	12·18	0·021	0·321				
11870	1·021	15·72	0·008	0·123				
11918	0·998	15·37	0·002	0·031				
11919	0·965	14·86	0·008	0·123				

Samples Nos. 11918 and 11919 were obtained from retail pharmacists, the others through wholesale sources. There appears to be no standard for the amount of formaldehyde which should be present in these tablets, with the exception of the tablettæ formaldehydi, B.P.C., which are recommended to be made with 3 c.c. formaldehyde solution to 100 tablets, equivalent to about 0.011 gram per tablet. Two of the above samples (Nos. 11858 and 11860) were labelled "B.P.C." and do not differ seriously from this standard. Sample No. 11864 is almost double the standard, but some of the others, particularly Nos. 11863 and 11918, are lamentably deficient in strength.

Discussion.

The President pointed out the necessity for a proper standard of purity in medicine.

Mr. Hampshire, referring to the previous paper mentioned ("Year-Book of Pharmacy," 1912, 465), stated that the method they employed did give satisfactory results, but could not explain why the authors of the present paper had not been successful. Fuchsin, as an indicator, he had found unsatisfactory. Eight or nine years ago he had found, just as to-day, a large number of tablets on the market which did not conform to the label specification.

Mr. E. W. Mann suggested that the discrepancy might be due to subsequent evaporation rather than the method of manufacture. There was some doubt regarding the therapeutic action—whether it acted as a disinfectant or as an intestinal antiseptic.

Mr. Cherry (Walton) inquired if there was no method of fixing the formaldehyde in the tablet. He also considered that the loss was due to evaporation after manufacture.

Mr. Gamble spoke of the making and maintaining the tablets at the proper strength, and referred to the patent which claims the chemical combination of formaldehyde and lactose. As regarded the compressed tablet and lozenge, undoubtedly the latter was the better, owing to the method of manufacture. The paper was a practical one.

Mr. Finnemore considered that this matter should be followed up by the Codex sub-committee, who should investigate which is better—paraformaldehyde or formaldehyde. He remarked that tablets containing chloroform can be successfully prepared, so there should be no difficulty over formaldehyde.

Mr. Nutter Smith said he had had considerable experience in the manufacture of such tablets. In order to obtain a finished article of a definite strength it was necessary to add excess of the ingredient when commencing. The amount to be added in excess could easily be discovered by experimenting. Lozenges retain their strength better than tablets. The patent mentioned that the formaldehyde and lactose formed a chemical compound by hydrolysis. He inquired of the author as to the effect of citric acid. No two firms make the tablets in exactly the same way.

Mr. Cherry suggested that there might be oxidation as well as evaporation.

Mr. Evers, in reply, confirmed the statement that he had not achieved satisfactory results from Mr. Hampshire's methods. Lactose affected the iodine method, but not Schiff's. About two-thirds of the formaldehyde was lost in making, and therefore paraformaldehyde should be better; but he is not sure if it has the same therapeutic properties. It does not seem as if a chemical combination is formed. Citric acid does not affect Schiff's reagent.

The President expressed the thanks of the members to the author for his practical paper.

The next paper was :

The Titration of Certain Alkaloids.

By Norman Evers, B.Sc., F.I.C.

[Abstract.]

In examining the literature of analytical chemistry in the light of modern development of the theory of titrations one is struck by the haphazard way in which indicators are recommended for titrations. Most frequently indicators appear to have been chosen on account of the sharpness of the end-point rather than on account of suitability on theoretical grounds for the titration in question. Further, the indicators used are chiefly confined to methyl orange, phenolphthalein, litmus, and cochineal, no one of which, with the exception of phenolphthalein, can be regarded as a good indicator when compared with the new and brilliant indicators which are now available. Probably the chief reason why these new indicators are not in more common use is the absence of any data as to the titrations to which they are applicable.

In a theoretically perfect titration of a weak base, such as morphine, we should run in standard hydrochloric acid until we had in our solution nothing but pure morphine hydrochloride. The means by which we determine when the morphine is in the state of hydrochloride is by adding an indicator. Now all indicators change in colour over a definite range of hydrogen ion concentration—that is to say, the change of colour of an indicator is brought about by hydrogen ions, and what we are actually doing when we bring a solution to the neutral point of methyl orange, say, is to bring it to a definite hydrogen ion concentration. Therefore, if we add methyl orange to our morphine titration and bring the solution to the neutral point we are bringing the solution to a hydrogen ion concentration of about *PH = 4, or, if we use cochineal, to about PH = 6. Now if the hydrogen ion concentration of a solution of morphine hydrochloride of the strength used in the titration is PH = 4, methyl orange will give a correct result; if PH = 6, cochineal will give a correct result; but they cannot *both* give a correct result. It is necessary, therefore, in order to find the best indicator for use in any given titration, to determine the hydrogen ion concentration of a solution of the end-product of the titration of the same strength as that produced in the titration. Then if we can find an indicator which has its colour change at this hydrogen ion concentration, that indicator (other things being equal) should be the best for use in that titration.

Titration of Morphine.—The B.P. recommends methyl orange for the titration of morphine; the U.S.P. advises cochineal. Experiments were carried out in order to find the hydrogen ion concentration of pure morphine hydrochloride in 1 per cent. solution, which is about the strength most frequently employed in a titration.

The mean of several experiments gave the PH of a 1 per cent. solution of morphine hydrochloride as 3.65. Now, this figure is within the range of the colour change of methyl orange, but is on the acid side of the neutral tint—that is to say, a 1 per cent. solution of morphine hydrochloride will give a decidedly pink colour with methyl orange. In order to titrate morphine to methyl orange, therefore, we must finish up with a decidedly pink colour. As the usual procedure in morphine titrations is to add excess of acid and titrate back with alkali, it is much more likely that the end-point taken will be on the yellow side rather than pink, and the result will be low. But methyl orange is not the best indicator for morphine titrations. If we use brom-phenol blue, an indicator which is yellow in acid solutions and blue in alkaline solutions, we find that a hydrogen ion concentration of PH = 3.65 corresponds to the first appearance of a distinct blue colour when we are passing from acid to alkaline. If, therefore, we dissolve morphine in excess of standard acid and titrate back with standard alkali to brom-phenol blue until a distinct blue colour appears we get a more accurate result. With cochineal, which has a range of hydrogen ion concentration of PH = 5 to 7, it is obvious that an accurate result cannot be obtained. The results of three titrations with the three indicators are as follows:

Indicator.	*Per cent. Morphine Found.*
Brom-phenol blue	... 100.0
Methyl orange	... 99.5
Cochineal	... 98.8

Incidentally the author noted that the statement frequently seen in the text-books that a solution of morphine hydrochloride is neutral to litmus is unfounded. Pure morphine hydrochloride should be acid to litmus.

Titration of Quinine.—It is usually recommended in the text-books to titrate quinine salts to phenolphthalein. In this way the whole of the quinine is precipitated in the course of the titration, and the end-point is not very satisfactory. The PH of a 1 per cent. solution of quinine acid hydrochloride was found as a mean of three experiments to be 3.46. Quinine acid hydrochloride should, therefore, in 1 per cent. solution be neutral to brom-phenol blue, with which it should give a pale greenish-yellow colour. Methyl orange would be decidedly pink at this PH. The PH of a 1 per cent. solution of neutral hydrochloride was as a mean 5.15. A solution of this PH is neutral to methyl red, with which it gives an orange colour. It will be seen from the above results that we can most accurately titrate a solution of quinine hydrochloride or sulphate by adding standard acid until a pale greenish-yellow colour corresponding to PH = 3.4 is obtained. A commercial sample of quinine hydrochloride titrated in this way gave 99.79 per cent. In the same way quinine acid hydrochloride or sulphate may be titrated with standard alkali until an orange colour corresponding to a PH of about 5.15 is obtained with methyl red solution. A sample of quinine acid hydrochloride titrated in this way gave 97.3 per cent. The end-points are not quite so sharp with quinine as with morphine, but with a little practice quite reliable results can be obtained. Commercial samples of quinine salts tested in 1 per cent. solution gave the following values for PH: Quinine hydrochloride, 6.2; quinine acid hydrochloride, 3.7; and quinine acid sulphate, 3.6.

Titration of Atropine.—The B.P. and U.S.P. employ cochineal for the titration of the alkaloids obtained from belladonna. In order to determine the PH of a 1 per cent. solution of atropine hydrochloride, a known weight of pure atropine was dissolved in the theoretical volume of $N/10$ hydrochloric acid and made up to 1 per cent. strength. The PH of the solution was found to be 3.75. This corresponds to a distinct blue colour with brom-phenol blue, and is reasonably close to the end-point of the morphine titration given above. It is again evident the cochineal is an unsuitable indicator for this titration, and that brom-phenol blue should be used, finishing with a distinct blue colour. A commercial sample of atropine sulphate had in 1 per cent. solution PH = 5.9, showing that it contained an excess of atropine over the sulphuric acid.

DISCUSSION.

The PRESIDENT, in opening the discussion, remarked that this was a "stiff" but valuable paper.

Mr. A. J. JONES suggested that over-accuracy might defeat one's object. Normal solutions varied a little from time to time. It was rather better, in this kind of estimation, to standardise the solution against the substance taken.

Mr. MANN congratulated the author of the paper on a very important piece of work. He confessed to having sometimes been in hopeless doubt at the end of a process. His view was that the nearer we got to absolute accuracy the better.

Mr. J. R. HILL pointed out that the personality of the analyst counts for a great deal. He had sent the same mixture to twelve competent analysts, and had received a different report from each. (Laughter.) It would be very valuable if we could get a perfectly definite process: he was not sure if standardised preparations of the same name on the market were all standardised by the same process. A maker might adopt a quicker process than the official one, and it might be perfectly satisfactory. Some co-ordination of method was wanted.

Mr. SHEPHEARD inquired how the first appearance of a distinctly blue colour was ascertained.

Mr. DEANE wondered whether brom-phenol blue of a sufficient degree of purity was easily obtained. There was a temptation, he thought, for analysts to vary the B.P. methods if they could.

Mr. HAMPSHIRE, after congratulating the author, pointed out that an indicator suitable for direct titration was not necessarily suitable for titration back. One might be inclined to tremble for future examination candidates. (Laughter.)

Mr. GAMBLE believed that the paper might prove not so difficult as, on the face of it, it appeared to be. The method of the author, he added, "has a future, and may revolutionise some operations."

Mr. D. LLOYD HOWARD referred to his experiences in connection with quinine testing—two men would each get results consistent with his own and differing, by

* PH is the logarithm of the reciprocal of the hydrogen ion concentration in terms of normal—i.e., if PH = 1 the hydrogen ion concentration is $N/10$; if PH = 2, $N/100$, etc. The lower the value of PH the more acid is the solution and *vice versa*. At the point of absolute neutrality PH = 7.

a fairly constant difference, from the other. It would be interesting to know whether the behaviour of the quinine was in any way masked or affected by the other cinchona alkaloids.

Mr. Evers, replying on the points raised, said that one did not always obtain results accurate to three places of decimals. The question of dilution did not make so very much difference. Standardisation of a solution against a substance gave accurate results if the substance was of absolute purity. With a little experience, one got to know the shade of colour necessary. Brom-phenol blue and the other indicators referred to were now on the market. Sodium chloride was practically completely ionised in solution. He had not tried the effect of other cinchona alkaloids on the behaviour of quinine.

The President thanked the author, amid applause.

The next paper was :

The Analysis of Theobromine and Sodium Salicylate.

By C. T. Bennett, B.Sc., F.I.C., and F. B. Windle.

[Abstract.]

The British Pharmacopœia requires that this salt shall yield at least 40 per cent. of theobromine and 35 per cent. of salicylic acid. The United States Pharmacopœia requires at least 46.5 per cent. of theobromine, but gives no standard for the percentage of salicylic acid. Theoretically, the salt should contain 44.19 per cent. of sodium salicylate and 55.81 per cent. of sodium theobromine. This corresponds to a yield of 49.7 per cent. of theobromine and 38.1 per cent. of salicylic acid.

The process for the estimation of the theobromine is practically the same in both Pharmacopœias, but that of the U.S.P. is more explicit in stating the quantity of hydrochloric acid to be used, and giving a correction for the theobromine not extracted under the conditions stated. An important point in the U.S.P. process is that a maximum limit is given for the amount of alkali neutralised by hydrochloric acid, using phenolphthalein. For the decomposition of the sodium theobromine 2 grams of the salt should require not more than 5.5 c.c. of normal hydrochloric acid. This corresponds to a maximum of 55.6 per cent. of sodium theobromine against the theoretical amount of 55.8 per cent. In the remainder of the process the method is the same, but the U.S.P. allows the precipitated theobromine to stand for three hours at a slightly higher temperature (20°-25° C.) than the B.P. requires (15.5° C.). In washing the precipitate the U.S.P. imposes a limit of 20 c.c. of ice-cold water, and allows for loss 0.13 gram. If this correction is applied to the B.P. process the minimum percentage required is identical with that of the U.S.P. We suggest the following modification of the B.P. process for the estimation of this salt :

Dissolve 2 grams of the dried salt in 10 c.c. of distilled water, add a few drops of phenolphthalein solution, and titrate with normal hydrochloric acid. Not more than 5.5 c.c. should be required. The solution should now be slightly alkaline to litmus; if not, a drop or two of dilute ammonia is added to make it so. Allow to stand for three hours at 15.5° C., and filter off the theobromine on a counterbalanced filter. Wash with four portions of 5 c.c. of cold distilled water, and dry the precipitate at 100° C. To the weight of the precipitate add 0.13 gram. The percentage found should be not less than 46.5. Strict attention to details must be given.

In the estimation of the salicylic acid there is a tendency to loss in the B.P. process. The salicylic acid is liberated with hydrochloric acid, and extracted with ether; the ether is evaporated in a tared dish, the acid is dried at 60° C. and weighed. The following modification is suggested :

Transfer the filtrate from the theobromine estimation to a separator; add 5.5 c.c. of normal hydrochloric acid, and shake out with four successive quantities of 10 c.c. of ether. Wash the mixed ether solutions with 10 c.c. of distilled water. Fifty c.c. of water is added to the ether solution in the separator, and the salicylic acid is titrated with normal sodium hydroxide, shaking after each addition, using phenolphthalein as indicator. Each c.c. of normal sodium hydroxide corresponds to 0.138048 gram of salicylic acid. A minimum of 37.5 per cent. is suggested.

By avoiding an excess of hydrochloric acid, the error which might be thus introduced is escaped. Experiments with chloroform in place of ether, as suggested by Squire, were not found satisfactory, as salicylic acid is much less soluble in chloroform.

An estimation of the total combined sodium can be made by ignition and conversion into sulphate, as suggested in "Evans's Analytical Notes, 1914-1919." Ignition and titration of the alkali formed gives low results. The theoretical sodium content is 12.7 per cent. The following percentage figures were obtained on the same sample in comparing the various methods :—

	B.P.	U.S.P.	Squire	Suggested method
Theobromine ...	37.5	44.2	—	44.2
Salicylic acid ...	34.6	No method given	35.9	38.0

Other samples showed the following variations :

	B.P.	Squire	Suggested method
Theobromine ...	37.5 to 39.4	—	43.5 to 48.4
Salicylic acid ...	30.0 to 34.6	28.0 to 36.1	38.0 to 38.5

The B.P. requirement that the salt should be preserved in stoppered amber-coloured bottles is most important, as it is rapidly decomposed on exposure to air, with absorption of carbon dioxide and liberation of theobromine, becoming less soluble in water.

The above experiments were conducted in the analytical laboratory of Wright, Layman & Umney, Ltd.

In the absence of the author, this paper was read by Mr. Hampshire. No discussion took place. The thanks of the members were voted to the author.

The next paper also was read by Mr. Hampshire.

Note on Liquefied Carbolic Acid.

By C. T. Bennett, B.Sc., F.I.C., Ph.C.

[Abstract.]

The tendency of this substance to crystallise in cold weather was noted by the late Mr. John C. Umney in 1900 (*P. J.*, lxv., p. 473). In view of the fact that the melting-point of carbolic acid had been raised from 33° C., in the B.P., 1885, to 38.8° in the B.P., 1898, it was suggested that the proportion of water should be increased to 15 grams to 100 grams of phenol. This alteration was made in the 1914 Pharmacopœia. The standard for melting-point of phenol was, however, still further raised to 39°-40° in the B.P., 1914, and liquefied carbolic acid of the specific gravity given in the Pharmacopœia (1.067-1.069) will have a melting-point, after freezing, of about 8.5° C. Mr. Umney's suggested standard for the specific gravity of liquefied carbolic acid was 1.065-1.067, and corresponds to a liquefying-point of about 6.5° C.

It appears to me desirable to increase still further the proportion of water, adding 20 grams to 100 grams of phenol. I believe it has been suggested that a preparation containing 50 gr. of phenol in each fluid drachm would be more convenient for dispensing-purposes. This would correspond to the addition of approximately 28 grams of water to 100 grams of phenol. The opinions of pharmacists on this question are invited.

—	Mixture No. 1	Mixture No. 2	Mixture No. 3
Carbolic acid ...	100 grams	100 grams	100 grams
Water	15 ,,	20 ,,	28 ,,
Percentage by weight	86.9	83.3	78.1
Sp. gr. at 15° ...	1.068	1.064	1.060
Melting-point after freezing ...	8.5°	6.5°	2.5° to 3°
Amount of water that can be added before separation occurs	20 % (weight)	16 % (weight)	7 % (weight)

The preceding experiments were carried out in order to ascertain at what temperature the liquefied carbolic acid melted. The melting-point of the phenol used was 40.5° C.

My thanks are due to Mr. F. C. L. Bateman, B.Sc., for conducting the experimental work, and to Wright, Layman & Umney, Ltd., for permission to publish this note.

DISCUSSION.

Mr. MELLOR contended that if the acid was intended to be a liquid it should be made as such. The addition of more water would be convenient, and fewer difficulties would arise.

Mr. FRANKLIN suggested a standard of 80 per cent. by weight as most convenient.

Mr. FINNEMORE said that the acid should not have a freezing-point above 0° owing to the danger of uninstructed people pouring off the liquid portion. Research had not so far revealed a satisfactory substitute for water.

The PRESIDENT proposed a vote of thanks to the author, and subsequently mentioned that one of the original members of the Conference, Mr. John Whitfield, father of the present chairman of the local Committee, resided in Scarborough, but was absent owing to illness. It was agreed to send a message to him from the gathering.

Tuesday Afternoon's Proceedings.

Science Section.

A diminished audience assembled, fifteen minutes after scheduled time, to continue the proceedings of the Science Section. The first papers taken were :

The Quantitative Determination of Sodium Arsenate.

By C. E. CORFIELD, B.Sc., F.I.C., Ph.C., and ELSIE WOODWARD, Ph.C.

[ABSTRACT.]

IT has long been obvious to those who have had experience in supervising the carrying out of the official process for the quantitative determination of sodium arsenate that some explanation of the discrepancies in results, so often occurring, was necessary. On making a survey of the literature, the authors found that the original experimental work was published in 1879 by W. A. H. Naylor, who suggested the use of hydriodic acid for the reduction of arsenic acid. His original method, as well as the results of the investigations undertaken by Gooch and Browning, Williamson, and several other authors, were exhaustively discussed in this paper before proceeding to describe the observations made in their own investigations on the relative results obtained by the different methods described in the literature.

OBSERVATIONS ON THE METHOD OF THE B.P. 1914.

The principles of Naylor and others have been applied by the compilers of the British Pharmacopœia in the quantitative test for anhydrous sodium arsenate; this test is as follows : When 0.25 gram is dissolved in 25 c.c. of water, and to the solution 3 grams of potassium iodide and 25 c.c. of hydrochloric acid are added, not less than 26.3 c.c. of $N/10$ solution of sodium thiosulphate is required to decolorise the iodine liberated. The present investigators have carried out this determination under different conditions. The effects of changes in the concentration of the reacting substances have been examined, and the results, which confirm those obtained by one of the authors some years ago, are placed on record.

(1) *Indicator.*—With the addition of starch mucilage no sharp end point was obtained owing to the deep red colour produced by dextrin, which is formed by the hydrolytic action of the concentrated acid on the starch (Hampshire's Volumetric Analysis).

(2) *Varying Concentrations of Reacting Substances.*—Experiments on the effect of varying concentrations upon the readings of decinormal sodium thiosulphate show that the quantity of decinormal solution of sodium thiosulphate used varies considerably with the concentrations of hydrochloric acid and potassium iodide present, and that the amount of arsenate used must be within certain limits; but if the quantities set forth in the B.P. are rigidly adhered to, the end point is clear, and a satisfactory reading is obtained. The results are, however, invariably slightly high, and so blank experiments were carried out with potassium iodide and hydrochloric acid, the mixture being titrated with decinormal sodium thiosulphate solution. These showed that in order to obtain a true result the reading obtained in the blank experiment must be subtracted from the thiosulphate reading before the percentage purity can be calculated.

COMPARISON OF THE VARIOUS PROCESSES

when applied to the determination of a sample of anhydrous sodium arsenate containing 99.88 per cent. Na_2HAsO_4. The sample employed was free from nitrate, and quantities of 0.125 gram, 0.25 gram, or 0.3 gram were used, according to the individual process.

1. *McKay* (modification of Mohr's process).—0.25 gram sample dissolved in 25 c.c. water was taken, and 30 c.c. of a saturated solution of sulphur dioxide added; the mixture was placed in a well-stoppered bottle, sealed, and heated in boiling water for one hour, then removed, cooled, placed in a flask, diluted to double its volume, and boiled down to the original volume, using a platinum spiral to aid evaporation. Finally, the liquid was cooled, diluted, a slight excess of sodium bicarbonate added, and titrated with decinormal iodine solution.

Reading = 26.7 c.c. $N/10$ iodine = 99.32 per cent. Na_2HAsO_4.

The process is somewhat long and tedious, giving a result consistently low; this may be due to the reduction not being quite complete under these conditions.

2. *Williamson.*—(*a*) This is essentially the method specified in the B.P. with the additional titration with iodine, and differing in a choice of hydrochloric or sulphuric acid.

0.25 gram sample was dissolved in 25 c.c. water, 3 grams potassium iodide added with either 25 c.c. concentrated hydrochloric acid or 15 c.c. sulphuric acid (1 : 1), and the reduction carried out at the ordinary temperature. The mixture is titrated with decinormal thiosulphate nearly neutralised with sodium hydroxide, finally with a slight excess of sodium bicarbonate, and then titrated with iodine.

Reading = 27.05 c.c. $N/10$ thiosulphate = 100.63 per cent. Na_2HAsO_4.

Reading = 26.85 c.c. $N/10$ iodine = 99.88 per cent. Na_2HAsO_4.

Arsenious iodide is precipitated, and is hydrolysed as titration proceeds. On subtracting the reading obtained in the blank experiment (v.a. 0.2 c.c.) from the thiosulphate reading, it is observed that the two readings are identical. This method is rapid and reliable if the result is calculated either from the iodine reading or the corrected thiosulphate reading.

(*b*) In this case reduction was carried out at a higher temperature. 0.25 gram sample was dissolved in 25 c.c. water, 2 grams potassium iodide added, with 10 c.c. concentrated sulphuric acid, and the mixture heated for five minutes on a steam-bath. An appreciable quantity of iodine is volatilised, but Williamson states that no arsenic is lost during the heating.

This process was found to be unsatisfactory, the source of trouble appearing to be the separation of solid iodine along with the precipitated arsenious iodide. Moreover, the end-point on titration with thiosulphate was indefinite, and this would seem to account for the variation in the iodine readings, which were by no means constant.

Various determinations were carried out on samples containing nitrate, such as are often met with in commerce. Williamson's method (*a*) was used both with hydrochloric and sulphuric acids. Samples containing from 10 to 50 per cent. of nitrate were employed, and in no case were the quantities of solutions of iodine and of sodium thiosulphate used in any way affected. This must be regarded as a confirmation by the authors of the work of previous investigators.

3. *Gooch and Browning.*—The original method used for the determination of iodine in the halogen salts of the alkalis was adapted for the determination of arsenates.

0.125 gram sample was dissolved in 25 c.c. water, 1 gram potassium iodide added, with 20 c.c. sulphuric acid (1 : 1), and the mixture diluted to 100 c.c. with water; this was then boiled down carefully to 35 c.c. with a platinum spiral in a flask fitted with a trap in the neck, cooled, nearly neutralised with sodium hydroxide, sodium bicarbonate in slight excess added, and the mixture titrated with decinormal iodine.

Reading = 13.25 c.c. $N/10$ iodine = 98.58 per cent. Na_2HAsO_4.

The results obtained were, on the whole, slightly low. The concentration must be carried out with extreme care, for if allowed to proceed too far loss of arsenious iodide will result.

This method of Gooch and Browning was modified by Little, Cahen, and Morgan for the determination of arsenic in organic compounds after oxidation. In the present investigation unsatisfactory results were obtained for sodium arsenate. 0.125 gram sample was dissolved in 50 c.c. water, phenolphthalein added, then 11 c.c. sulphuric acid (1 : 1) and 1 gram potassium iodide; the mixture was concentrated to 40 c.c., decolorised with a few drops of a dilute solution of sulphur dioxide, diluted, cooled, neutralised with twice normal sodium hydroxide solution, and slightly acidified with sulphuric acid. According to Washburn's recommendation, an 11-per-cent. solution of sodium phosphate was added, the quantity added being about the same as the reading of decinormal iodine obtained (i.e., approximately 13 c.c. in this case); the whole was then titrated with decinormal iodine. The use of sodium phosphate instead of bicarbonate cannot be recommended.

4. *Sutton* (verified by Younger).—0.125 gram sample was dissolved in 25 c.c. water, 2 grams potassium iodide and 25 c.c. concentrated hydrochloric acid added, and the mixture diluted with water to 80 c.c. The whole was then boiled till all iodine vapours were dissipated, cooled, nearly neutralised with sodium carbonate, sodium bicarbonate added, and the mixture titrated with iodine. Reading (average) = 12.7 c.c. $N/10$ iodine = 94.49 per cent. Na_2HAsO_4. The readings varied considerably, and the results obtained were uniformly low, owing probably to incomplete reduction. The mixture requires prolonged boiling in order to remove the iodine completely.

5. *United States Pharmacopœia.*—0.3 gram sample was dissolved in 25 c.c. water and heated to 80° C. in a stoppered bottle; 10 c.c. concentrated hydrochloric acid was then added, and 3 grams potassium iodide, the whole allowed to stand at 80° for fifteen minutes, cooled, and titrated with sodium thiosulphate.

Reading = 32.7 c.c. $N/10$ thiosulphate = 101.37 per cent. Na_2HAsO_4. The results obtained were consistently high, so that, departing from the official method, after decoloration with thiosulphate, the solution was neutralised with sodium hydroxide and a slight excess of sodium bicarbonate and titrated with decinormal iodine.

Reading = 32.2 c.c. $N/10$ iodine = 99.82 per cent. Na_2HAsO_4. This result corresponded with that obtained by Williamson's method (*a*). The discrepancy of 0.5 c.c. between the thiosulphate and iodine readings would probably disappear if a blank experiment were carried out, using exactly similar conditions and employing corrected quantities of potassium iodide and hydrochloric acid, as explained above. Undoubtedly the high thiosulphate reading giving a result of 101.37 per cent. is incorrect.

6. *Gooch and Morris.*—0.25 gram sample was dissolved in 60 c.c. water, and 1.1 gram potassium iodide (i.e., 0.5 gram in excess of the theoretical quantity) and 10 c.c. sulphuric acid (1 : 1) were added. The mixture was boiled until no iodine was seen above the liquid, bleached with a dilute solution of sulphur dioxide, diluted and cooled quickly, neutralised with sodium hydroxide, excess of sodium bicarbonate added, and titrated with decinormal iodine solution. Reading = 27.1 c.c. $N/10$ iodine = 100.81 per cent. Na_2HAsO_4. By this method the removal of iodine is a tedious operation and requires considerable care. The result obtained showed an error of nearly 1 per cent.

7. *Bennett* (modification of method of Pierce).—0.125 gram sample was dissolved in 25 c.c. water, and to the solution added phenolphthalein, a few drops of acetic acid, sodium hydroxide, and then a slight excess of acetic acid until the solution was decolorised; 30 c.c. decinormal silver nitrate solution was stirred in vigorously, and the mixture allowed to stand for an hour or two away from direct sunlight; the precipitate was filtered off and thoroughly washed with cold water, dissolved in 20 c.c. concentrated nitric acid diluted with water, and titrated with decinormal ammonium thiocyanate solution, using a ferric salt as indicator.

The highest result obtained was calculated to 95.79 per cent. Na_2HAsO_4. This method would be useless in the presence of phosphate or other salt precipitated by silver nitrate in neutral or acetic acid solution, so that, except in special cases, it is not of great value.

8. *Boam.*—0.125 gram sample was dissolved in 25 c.c. water, 30 c.c. of a solution of sodium acetate and acetic acid added, and the mixture heated to 90° C. and kept at that temperature during the titration with uranium acetate solution (previously standardised by means of pure arsenious oxide oxidised with concentrated nitric acid); the titration was continued until a brown coloration was obtained with a solution of potassium ferrocyanide, used as an external indicator. The result calculated was 91.68 per cent. Na_2HAsO_4. This method is not a satisfactory one. It is slow, and the end-point is not very easy to determine, although very constant readings were obtained. Moreover, the method would be entirely useless in the presence of phosphate.

The authors conclude that the greatest reliance is to be placed on the methods of Gooch and Morris and of Williamson. In the case of the latter the calculation should be made from the iodine reading. The B.P. makes no allowance for the inaccuracy of the thiosulphate reading, which in consequence gives results inaccurate to the extent of about 1 per cent.

The Volumetric Determination of Arsenic Acid and Arsenates.

By R. Leitch Morris.

[Abstract.]

The author's chief object is to direct attention to work already published on the subject, as this work is evidently unknown to those responsible for the method adopted by the Pharmacopœia under sodium arsenate. The B.P. method is inaccurate unless a correction is applied to the results. This correction is fairly definite when the process is applied under strictly definite conditions, and when so corrected the results are close to the theoretical. Otherwise, the results will vary considerably. Attention is also drawn to another process, published earlier still, which gives accurate results without the application of any correction.

The Reduction of Arsenic Acid.—Most of the volumetric methods available involve reduction to the arsenious condition, followed by the determination of one of the products of reduction. Complete reduction, however, is not easily obtained except under special conditions. Naylor pointed this out in the case of sulphurous acid; Holthof overcame this difficulty by a four-hours' digestion, and McCay obtained good results by heating the solution in a pressure bottle with sulphurous acid for one hour. After boiling off every trace of sulphurous acid (best with the aid of a current of carbonic anhydride), the solution of arsenious acid can be titrated (after neutralisation) in the usual way by iodine. This method is satisfactory, but troublesome; complete elimination must, however, be secured. As regards reduction by means of hydriodic acid, Naylor proposed a method based on this, the liberated iodine being titrated with sodium thiosulphate solution. Gooch and Browning solved the problem of getting accurate results by the hydriodic method, applying it in a new way. Briefly, the arsenic in solution containing sulphuric acid is treated with potassium iodide, the liberated iodine boiled off as completely as possible, any trace of yellow colour remaining just bleached by a weak solution of sulphurous acid, and, finally, the arsenious acid is titrated by iodine as usual. The merits of this process have only recently begun to be recognised; occasional references to it occur in recent journals, but

apparently it has not yet been described in any analytical treatise except one standard American work, in which, however, the names of the originators are not mentioned. Little, Cahen, and Morgan ("J.C.S.," 1909, 1477) adopted it for the final stage of the analysis of the arseno-benzol compounds—salvarsan, atoxyl, etc.—with very satisfactory results.

WILLIAMSON'S PROCESS.

This is practically the present B.P. process. The original paper appeared in the "Jour. Soc. Dyers and Colorists," 1896, p. 86. To 25 c.c. of the arsenate solution potassium iodide is first added, followed by an equal volume of hydrochloric acid of sp. gr. 1.16. The precaution is recommended that the strength of the arsenate solution shall not exceed decinormal, in order that the dilution consequent upon titration by the thiosulphate may not be too great, the reducing action brought about by the action of the strong acid on the arsenate and iodide being reversible on dilution of the liquid with water. This limits the process to the determination of about 0.18 gram H_3AsO_4 in 25 c.c. of the solution to be treated with an equal volume of hydrochloric acid of sp. gr. 1.16. Obviously, however, the process should, so far as the reduction is concerned, be applicable to larger amounts of arsenic, provided the strength of the acid is kept up proportionately. It is essential that the liquid at the end of the titration should contain approximately 10 per cent. (by weight) of absolute hydrochloric acid (HCl), or about one-third of its volume of the aqueous acid sp. gr. 1.16. The arsenic acid is measured either by the amount of standard thiosulphate required to bleach the iodine or (after this bleaching) by the amount of iodine required to reoxidise the reduced arsenious acid, after neutralising the solution with alkaline bicarbonate. If the former alternative is followed, the end reaction must be the disappearance of the yellow colour of the iodine, since in such strongly acid solution the starch indicator loses all sensitiveness and is untrustworthy. In using the latter method the use of starch is preferable.

The B.P. method is the process of Williamson, using the thiosulphate titration of the liberated iodine as the measure of the arsenic acid present, the B.P. prescribing the use of 3 grams of potassium iodide and 0.25 gram of anhydrous sodium arsenate, for which not less than 26.3 c.c. of $N/10$ thiosulphate should be required. The B.P. defines the salt as containing not less than 98 per cent. $Na_2HA_3O_4$. The titration figure given is theoretically equivalent to 97.83 per cent.

The author then referred to investigations dealing with the sources of error in the process, and showed that an arbitrary correction of about 0.0030 gram expressed as H_3AsO_4 must be deducted from the indicated results of Williamson's process of direct titration by thiosulphate made with the greatest care under the conditions mentioned, and that a correction varying from one-half this amount, 0.0015 gram H_3AsO_4 to zero (according to the amount of arsenious acid present), must be deducted, when the determination is made by iodine, after neutralisation. After making these corrections the individual variations fall within reasonable limits.

Without correction, Williamson's process, no doubt, is satisfactory for many purposes, such as that for which it was probably introduced—the verification of strengths of solutions used as mordants in dyeing, etc. The case is different when the percentage purity of a salt is calculated from results of a process involving such possible errors, for an error negligible in the case of, say, a 20-per-cent. solution is here multiplied by five times in calculating the purity of a salt. This is the weak point about the B.P. system of determining the acid or the base and calculating the purity of a salt on this basis. This magnification of the error in the final percentage results requires that only really accurate methods of determination should be given for salts, or else none at all, when a standard of 99 or 99.5 per cent. is exacted; otherwise, the Pharmacopœia requirements as to purity have no meaning.

The same correction can obviously be used for the determination of liquor sodii arsenatis, using 25 c.c. solution, 25 c.c. hydrochloric acid, and 3 grams of iodide. Here the uncorrected results may be near enough, for an exactly 1-per-cent. solution will show results between 0.98 and 1.02 per cent.

The process proposed for the next U.S.P. is as follows: 0.5 gram of the arsenate is dissolved in 25 c.c. of distilled water, and the solution heated to 80° C.; 10 c.c. of hydrochloric acid and 3 grams potassium iodide being added; the mixture is kept at 80° C. for fifteen minutes, cooled, and titrated with $N/10$ thiosulphate solution, starch solution being employed as indicator. Here the hydrochloric content is weaker, but the heating and standing will increase the excess of iodine liberated by the acid. The method of the B.P., carried out as suggested above, and applying the correction, is better. The convenience and speed of Williamson's process are lost here. Too much arsenate is taken unless a 60 c.c. burette is used; otherwise, the burette will need to be refilled during the titration—a faulty proceeding.

The author proceeded to show that the

GOOCH AND BROWNING PROCESS

is to be preferred; it gives accurate results. As originally worked out, the details are as follow: In a 250-300 c.c. Erlenmeyer flask mix the solution with potassium iodide to an amount 0.5 gram in excess of that required by theory, and add 10 c.c. of 1 : 1 sulphuric acid (i.e., the strong acid diluted with an equal volume of water). Dilute to a volume of about 100 c.c. A trap made by cutting off the narrow end of a straight $CaCl_2$ drying tube with two bulbs was hung in the neck of the flask (large end downwards) to prevent mechanical loss, and the liquid rapidly boiled down until a volume of 40 c.c. (indicated by a mark on the flask), the point at which the colour of iodine had faded to a pale yellow, was reached. The flask was now removed, the sides and trap quickly washed down, weak sulphurous acid (approximately $N/10$) added drop by drop until the colour of the iodine had just vanished; the liquid was immediately diluted with cold water, and the free acid nearly neutralised with potassium carbonate, and the point of neutralisation reached and passed by the addition of the acid potassium carbonate. After cooling completely and adding a definite amount of starch, the reduced arsenious acid was titrated with iodine, and due correction made for the iodine necessary to produce the end colour in the volume of liquid and starch employed.

In a series of trial analyses under these conditions, and using from 0.38 gram down to 0.003 gram As_2O_5, the average error in twenty-four determinations was below -0.0002 gram, falling between extremes of $+0.0003$ and -0.0007 gram As_2O_5. On all the twenty-four experiments the total loss was 0.0047 gram, equivalent to 0.13 per cent. of the total As_2O_5 taken. The whole process can be easily done within half an hour.

Gooch and Morris point out that time may be saved by restricting the volume at which boiling begins, so that the boiling need not extend beyond five or six minutes. In this case the process is similar, but the volume is made up to 50 to 75 c.c. according to the amount of iodine liberated. The solution is boiled till iodine vapours no longer appear in the flask above the liquid (do not concentrate much below 40 c.c.), the iodine colour in the still hot liquid is bleached by the cautious addition of weak sulphurous acid, the whole immediately diluted with cold water, cooled quickly, neutralised with potassium hydroxide, and the neutralisation completed with potassium bicarbonate.

Gooch and Morris gave thirteen determinations on a standard arsenate solution by this short method, taking from 0.16 to 0.31 gram H_3AsO_4. The errors all lie between the limits -0.0008 and $+0.0005$ gram H_3AsO_4 excepting one extreme case.

In a paper on "Soluble Ferric Arsenate," by Dr. F. B. Power and H. Rogerson, read at the Conference in 1908, a process by Rosenthaler ("Zeitschrift f. Anal. Chem.," 45, 596, 1906) was described which is somewhat similar to the process of Williamson, but a higher concentration still of hydrochloric is present. The process is carried

out in a stoppered bottle, 2 grams of potassium iodide are used, and hydrochloric acid added to bring the concentration to about 20 per cent. absolute HCl before titration. (In B.P. the concentration before titration is about 15 per cent. HCl.) Petroleum spirit is used as indicator of the disappearance of free iodine. The results for the arsenic determination on a ferric arsenate (after separation from iron) showed somewhat lower results than the gravimetric method.

The author finds that the results by the B.P. process vary with the conditions of titration. Gooch and Morris's method seems the best if worked as follows: Have the thiosulphate burette already charged and then mix the arsenate solution with the iodide and the hydrochloric acid, note the time, run in the thiosulphate slowly, drop by drop, stirring constantly (a small beaker is best in this case), till the yellow colour has become faint, and finish the titration five minutes after beginning it. Under these conditions the excess iodine liberated by the action of the acid, and any error due to decomposition of the thiosulphate by the acid, are fairly constant. From the amount of arsenate indicated by the titration, deduct 0.0040 gram Na_2HAsO_4, and calculate to percentage. The variations in the results should then lie between 99.8 and 100.2 per cent. Or, apply the correction thus: From the number of c.c. of thiosulphate required deduct 0.4 c.c. (correction). Multiply the remainder by 0.009298 and then by 100. The result is the percentage content of Na_2HAsO_4.

Owing to the mode of manufacture, commercial arsenate frequently contains nitrate. In the B.P. process this, through interaction with the hydrochloric acid, will cause an extra liberation of iodine. Traces of nitrates do not seem to have any effect in Gooch and Browning's method: the presence of any considerable amount of nitrate will interfere with the accuracy.

These two papers, on connected subjects, were summarised, in the absence of the authors, by Mr. Hampshire.

DISCUSSION.

Mr. EVERS briefly commented on the inaccuracy of the iodine method, and to the presence of sodium acid arsenate as a source of error.

The authors were thanked on the motion of the PRESIDENT.

The next paper was:

The Assay of Bromide in Saline Residues and Mixtures of Halogens.

By A. J. JONES, Ph.C.

[ABSTRACT.]

THE method adopted, by the author, in detecting and estimating traces of bromide is a development of Denigès method in which a solution of fuchsin decolorised with sulphuric acid is the reagent as follows:

Five c.c. of the solution (containing not more than 1 per 1,000 of bromine is mixed with 4 drops of hydrochloric acid, 4 drops of 10 per cent. potassium bichromate and 1 c.c. of sulphuric acid; then immediately cooled to 15° C. After 5 minutes 1 c.c. of the fuchsin reagent is added and 1 c.c. of chloroform, shaken, and then allowed to separate. The presence of 1 gram of sodium nitrite in a solution containing 1 mgm. of bromine does not prevent the detection of the latter ("Journ. Soc. Chem. Ind.," 1898, A 284). The reagent is described in the "Journ. Chem. Soc." 1913, p. 141 (abstracts): 10 c.c. fuchsin (1 per 1,000) is mixed with 5 c.c. dilute sulphuric acid (5 to 100) and 5 c.c. of water. The mixture becomes colourless in about 1 hour. 25 c.c. of this solution are mixed with 25 c.c. of glacial acetic acid, and 1 c.c. of sulphuric acid.

The reagent was first prepared as described, but, owing to unsuitable materials, a modified formula was found satisfactory. However, the exact form of Denigès test was not convenient, for various reasons, so another plan was adopted. In consists in oxidising by permanganate in phosphoric-acid solution, and adapting the reagent to the concentration of the solution under test. The permanganate solution is made as follows:

Five grams of potass. permanganate, 6¼ c.c. of phosphoric acid (s.g. 1·75), water 100 c.c. Dissolve and boil until any chlorine evolved is no longer detected; cool, and finally adjust to 100 c.c. Pour off from the deposit.

Wherever bromide is likely to occur the probable presence of chloride and iodide must be considered. The acid concentration in the solution is the most important factor in determining whether chlorine will be liberated in tangible quantity. Consequently, the acid must be kept as near as possible to the lowest limit that will give the reaction required. It has been found in practice that the following may be taken as the upper limit of concentration:

0·5 gram of sodium chloride in 7 c.c. bears 0·3 c.c. permanganate.
0·1 " " " " " 0·9 c.c. "

Negligible quantities of chlorine will be evolved when these solutions are heated to about 85° C. to 95° C. The method of applying the test is as follows:

For bromide in a chloride 5 c.c. of a 10 per cent. solution of the chloride is treated with a drop of dilute thymol-blue and sufficient $N/1$ sulphuric acid to give a distinct rose-pink tint. Then 0.3 c.c. permanganate solution is added and water to make 7 c.c. A suitable apparatus was here described. The temperature should be preferably 85° C. when aspiration is started. The bromide appears as a pink coloration in the left limb of the U-tube within from a few seconds to two minutes. Aspirate so that the bubbles can be easily counted for seventeen minutes. With bromide equivalent to 0.25 c.c. $N/1,000$ little colour will be seen at this stage; with 3 c.c. $N/1,000$, the colour will be a strong purple. After the aspiration transfer contents of the U-tube to a test tube, drain well and then rinse out with 2 c.c. of fresh reagent. Now add 7 c.c. chloroform, shake well and allow to separate. The 0.25 c.c. $N/1,000$ will now show a very faint but distinct rose tint in the chloroform, and larger quantities graduate in intensity. With ammonium salts the NH_4 must first be expelled before testing, and the resultant solution treated with $N/1$ sulphuric acid until a distinctly rose-pink to thymol-blue. Determinations are effected by following the above procedure, and comparing the test with a series of standards previously prepared. The actual test is arranged so that it falls below the equivalent of 4 c.c. $N/1,000$, and the following standards are taken: 0.25, 0.5, 1.0, 1.5, 2, 3, and 4 c.c. of $N/1,000$ K.Br, together with 1 c.c. of 10 per cent. NaCl solution 0.3 c.c. of the permanganate, and water sufficient to make a total of 7 c.c. The process already described is then followed. For residues generally there must be some knowledge of the approximate composition. Ammonium must be absent and organic matter burnt away. It must also be rendered nearly neutral. Then, so much of it should be taken as will contain not more than 0.5 gram of NaCl or its equivalent. This is treated with 5 c.c. of water, a drop of thymol-blue, and then sufficient $N/1$ H_2SO_4 to bring to the rose pink; 0.3 c.c. of the permanganate reagent is added, and, if there is very little or no chloride present, 0.1 gram of the special NaCl (triple recryst.) is added as well and the whole adjusted to 7 c.c. The test is then performed as described. If the permanganate is destroyed more must be added. The smaller the percentage of bromine present the higher should be the concentration in the test, but this must always be limited by the chloride, the highest concentrations for which have already been given.

Carried out as described, the test will accurately return 1 c.c. $N/1,000$ pot. brom. from 0.3 gram of sodium hydrogen phosphate and 0.1 gram of sodium chloride. If iodide is present it should be liberated by sodium nitrite and dilute phosphoric acid and shaken out with chloroform. The aqueous layer then separated and treated with $KMnO_4$, potass. permanganate reagent to a slight pink tint, then the necessary additional permanganate added, and the test performed. The examination of the iodides of pharmacy was then illustrated by an example taking 0.5 gram of potass. iodide. In cases where the bromide content is beyond the limit of the test a dilution is made. Using this test, the following percentages of potassium bromide have been found in samples of "Potassium Iodide B.P.":

0·0, 0·007, 0·016, 0·04, 0·12, 0·47, 0·59.

The following percentages of bromine were found among other salts: Table salt, 0.016; brine, 0.008; barium chloride, 0.006; potassium chloride, pure, 0.32. The sodium chloride referred to in the test as "triple recryst." is made from ordinarily pure salt, and 0.1 gram should

give no reaction for bromide. The obstinate retention of a trace of bromide in sodium chloride is an advantage because it supplies the "unobservable minimum" below which no reaction is given, but above which so small a quantity as 0.02 mgm. can be seen. This paper is communicated from the laboratory of Evans Sons Lescher & Webb, Ltd., Liverpool.

There was no discussion.

The next paper, read by Mr. EVERS, was:

Determination of Nitrates in Bismuth Salts.

By THOS. MCLACHLAN.

[ABSTRACT.]

AFTER considerable research the British Pharmacopœia method for the estimation of nitrates in bismuth carbonate was found to be unreliable. It was discovered that different workers obtained varying results on the same sample, and that the results at different times were not consistent. At the suggestion of Mr. J. L. Lizius, B.Sc., A.I.C., methods in use for estimating nitrates by reduction with titanous chloride, and with Devarda's alloy, were tried.

Titanous Chloride.—This method consists essentially in the reduction of nitrates in alkaline solution by means of titanous chloride, the ammonia formed being steam-distilled, collected in acid, and back titrated. At first this method was employed with success, using 5 grams of bismuth carbonate, 200 c.c. of water, and 100 c.c. of 33 per cent. caustic potash in a 1-litre round-bottomed flask, 25 c.c. of 15 per cent. titanous chloride solution being added. The mixture was steam-distilled through an ammonia still head and condenser into a receiver containing 20 c.c. of $N/20$ hydrochloric or sulphuric acid. The advantage of steam-distillation over other methods is that although all the ammonia is distilled, bumping is prevented. When about 100 c.c. of distillate had been collected, the excess of acid was titrated with $N/20$ caustic potash solution, methyl red being used as indicator. Although the results were always consistent among themselves, it was found that, under these conditions, certain samples only gave off about half their nitrate as ammonia, and, accordingly, variations of the method were employed. The most suitable conditions appeared to lie in reducing the nitrate in approximately neutral solution, a small excess of alkali being added before the distillation of ammonia. Five grams of carbonate was therefore mixed with 250 c.c. of water, 50 c.c. of 33 per cent. caustic potash solution, and 50 c.c. of titanous chloride solution, a gentle current of steam being run in to keep the mixture hot. After a quarter of an hour a further 10 c.c. of caustic potash solution was added through a dropping funnel, and about 100 c.c. of distillate collected.

Devarda's Alloy.—This alloy is used in alkaline solution in the presence of a small amount of alcohol, and most satisfactory results were obtained by mixing 5 grams of carbonate with 150 c.c. of water, 5 c.c. of alcohol, and 50 c.c. of 33 per cent. caustic potash solution in a flask, as in the titanous chloride method, and adding 8 grams of Devarda's alloy. The whole was allowed to stand for ten minutes, so that much of the hydrogen should be given off, and steam-distilled for about half an hour, collecting about 100 c.c. of distillate. If 5 grams of any bismuth salt be employed for either of these methods, 1 c.c. of $N/20$ acid required will correspond to 0.304 per cent. of bismuth subnitrate, $BiO.NO_3.H_2O$, present in the sample. The results of the examination of seven samples of bismuth carbonate for the percentage of nitrate as $BiO.NO_3.H_2O$ are shown in the table.

	Phenoldi-sulphonic acid	Indigo carmine	Kjeldahl	Titanous chloride	Devarda's alloy
A	4·01 3·00 2·9	1·27 2·09	2·84	2·71	—
B	1·07 1·17	0·66 1·34	0·82	0·78	0 78
C	1·07	·81	—	0·89	0·89
D	2·30	1·87	1·60	0·82	1·52
E	0·96	0·58	0·49	0·21	0·49
F	4·26	4·06	3·74	2·55	3·99
G	2·67	2·52	2·72	0·84 1·14 2·12	2·24

From the factors obtained it was concluded that the British Pharmacopœia method is unreliable, and that, owing to the exact conditions under which it is necessary to work, it is difficult to obtain concordant results by indigo carmine. In the case of bismuth subnitrate Kjeldahl's method cannot be depended upon, and in order to produce a correct value for the amount of nitrate present by means of titanous chloride a somewhat tedious process is involved. Devarda's alloy, on the other hand, gives a very consistent and reliable estimation of the total amount of bismuth subnitrate present, and is much superior to Kjeldahl's method, in that it may be completed in three-quarters of an hour with very little attention. The method of using Devarda's alloy for the estimation of bismuth subnitrate should be capable of being employed in almost any bismuth salt, excepting those in which ammonia is present. A great advantage in the Devarda's alloy method lies in the fact that a far better average sample may be obtained by using 5 grams of material than by using 0.02 gram, as recommended by the British Pharmacopœia, or 0.2 gram, as required by the indigo-carmine method.

The author acknowledged the assistance of Mr. Norman Evers, B.Sc., F.I.C., and Mr. J. M. Drummond, M.Sc., A.I.C., also of Allen & Hanburys, Ltd., in whose laboratories the research was carried out.

DISCUSSION.

Mr. D. LLOYD HOWARD remarked on the difficulty of discussing a paper of this kind without books of reference. A reliable method for determining nitrates in bismuth salts, however, would be of enormous importance.

Mr. A. J. JONES remarked that, if a very light bismuth carbonate was wanted, the manufacturer could not wash out sufficient of the nitrates.

Mr. EVERS was of opinion that the present B.P. limit is good enough.

The thanks of the Section were accorded to the author.

The next paper, read by Mr. LIZIUS, was:

Determination of Phosphate in Glycerophosphate.

By J. L. LIZIUS, B.Sc., A.I.C.

[ABSTRACT.]

IN a previous paper the author had shown that 0.1 per cent. of phosphate (estimated as phosphoric acid) could be detected in 0.1 gram of glycerophosphate by the addition of 10 c.c. of dilute nitric acid and 10 c.c. of 10 per cent. ammonium molybdate solution. In order to prevent the precipitation of molybdic acid it has been found preferable to use 25 per cent. nitric acid for the above test.

Smaller quantities of phosphate give a yellow colour, and the depth of colour is proportional to the amount of phosphate present. This is shown as follows:

A standard solution of phosphoric acid is prepared containing 0.004 per cent. of phosphoric acid; 1 c.c. = 0.00004 gram of phosphoric acid. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 c.c. of this standard solution are added to 10 c.c. of 25 per cent. nitric acid and 10 c.c. of 10 per cent. ammonium molybdate solution. A series is obtained, the depth of colour gradually increasing, and any two of the series can be readily distinguished from one another. On standing precipitates are slowly formed, and on standing overnight decided precipitates are formed in every case except that of the blank. The presence of 0.1 gram of pure glycerophosphate has no effect whatever on the depth of colour obtained.

The following tintometric method has been found to be simple and rapid, and the results obtained agree very well with gravimetric determinations by the method of B. Schmitz (Z. anal. Chem. 45, 512, 1906). (Treadwell, vol. ii., p. 434.) The test is carried out as follows: 1 gram of the glycerophosphate is dissolved in 50 c.c. of water; if not readily soluble in water, dissolve in dilute nitric acid and dilute to 50 c.c. with water. This solution is placed in a burette. Two Nessler cylinders, each containing 10 c.c. of 25 per cent. nitric acid and 10 c.c. of 10 per cent. ammonium molybdate solution. To one add 5 c.c. of the standard phosphoric acid solution, producing a definite depth of yellow colour due to 0.0002 gram of phosphoric acid. To the second Nessler run in the solution from the burette until the depth of colour in the Nesslers is identical.

(1) No colour is produced by 10 c.c.—phosphoric acid less than 0.02 per cent.

(2) Colour produced by 10 c.c. is not as deep as the standard—phosphoric acid 0.02 to 0.1 per cent.

The colour can be matched by taking less than 5 c.c. of the standard solution—per cent. of phosphoric acid = X 0.02, where X = the required volume of the standard solution.

(3) Volume required is 1 to 10 c.c.—per cent. of phosphoric acid = $\frac{1.0}{n}$ where n is volume run in from the burette.

(4) Less than 1 c.c. is required. Run 10 c.c. from the burette into a 100-c.c. graduated flask and dilute to 100 c.c. This diluted solution is placed in the burette and the estimation repeated—per cent. of phosphoric acid = $\frac{10}{n}$ where n is the volume run in from the burette. In cases (3) and (4) a more accurate value can be obtained by making a fresh solution of the glycerophosphate, so that 5 c.c. contain 0.0002 gram of phosphoric acid, and repeating the estimation. To estimate the phosphate in ferric glycerophosphate, 1 gram is dissolved by warming in 15 c.c. of water and 5 c.c. of dilute nitric acid; 10 c.c. of 20-per-cent. sodium hydroxide solution is added, the ferric hydroxide filtered off, and washed until the volume of the filtrate is 50 c.c. The phosphate is estimated in this filtrate as described above. The following results are typical of the glycerophosphates of commerce:

Glycerophosphate	% phosphate (as phosphoric acid)
I.	
25 per cent. glycerophosphoric acid, 4 c.c. diluted to 50 c.c.	(1) less than 0.1; (2) less than 0.1; (3) 0.4
II.—*Syrups.*	
75 per cent. potassium glycerophosphate	9.5
50 per cent. potassium glycerophosphate	less than 0.02
75 per cent. sodium glycerophosphate	(1) 2.5; (2) 4.0; (3) 2.0
50 per cent. sodium glycerophosphate	less than 0.02
III.—*Solids.*	
Sodium glycerophosphate (100 per cent.)	(1) less than 0.02; (2) less than 0.02
Calcium glycerophosphate ...	(1) less than 0.1; (2) less than 0.1; (3) less than 0.02
Magnesium glycerophosphate	(1) less than 0.1; (2) less than 0.1; (3) 3.3
Ferric glycerophosphate ...	12.5

The sample of ferric glycerophosphate contained ammonia. It is stated that glycerophosphates should be free from phosphate, but no attempt has been made to fix a limit for the amount of phosphate. It will be noticed that most of the solid glycerophosphates, and glycerophosphoric acid contain very little phosphate, but the glycerophosphate syrups usually contain considerable quantities. A reasonable limit for the amount of phosphate in glycerophosphates would be 0.1 per cent. (as phosphoric acid). The following simple test is suggested:

One gram of the glycerophosphate is dissolved in 25 c.c. of dilute nitric acid; 5 c.c. of this solution when added to 10 c.c. of 25-per-cent. nitric acid and 10 c.c. of ammonium molybdate solution, should not give a deeper yellow colour than is given by 5 c.c. of a 0.004 per cent. solution of phosphoric acid, added to 10 c.c. of 25 per cent. nitric acid and 10 c.c. of 10 per cent. ammonium molybdate solution.

The work for this paper was carried out in the analytical and research laboratories of Allen & Hanburys, Ltd.

DISCUSSION.

Mr. GAMBLE pointed out the practical importance of the paper, in view of the difficulty of making a bright glycerophosphates syrup.

Mr. EVERS remarked that glycerophosphates which contained a high percentage of phosphates are of British manufacture, and those with a low percentage are of German manufacture.

The PRESIDENT, in expressing the thanks of the meeting to the author, said that this was a clearly worked out paper and set forth a simple method.

The next paper, read by Mr. EVERS, was:

Assay of Atropine and Cocaine in the B.P. Ointments.

By H. J. FOSTER.

During the routine examination of a number of ointments of the British Pharmacopœia it was found that the atropine and cocaine ointments gave low results. The process used was a gravimetric one. Two grams of the ointment was dissolved in petrol ether, transferred to a separating funnel, and the alkaloid extracted with weak hydrochloric-acid solution. This solution was made alkaline with solution of ammonia, and the alkaloid extracted with chloroform. The chloroform was run into a tared flask, evaporated off and the alkaloid dried and weighed. The results were not only low but were not concordant, since duplicates disagreed. In order to test the accuracy of the process, ointments were made in the laboratory, containing the official quantity of alkaloids. It was then found that the process was valueless. In a further attempt to assay these ointments, the following method was used:

Two grams of the ointment was weighed into a 50-c.c. beaker and dissolved in 10 c.c. of chloroform. When solution was complete it was transferred to a separating funnel and the beaker washed with a further amount of 10 c.c. of chloroform, the washings being added to the separating funnel. Twenty c.c. of $N/20$ sulphuric acid was added from a pipette, and the whole well shaken and allowed to separate. The acid solution was separated, and the chloroform layer washed twice with 10 c.c. of water, the water being added to the acid liquid. The acid liquid was then titrated with $N/20$ potassium hydroxide solution, using brom-phenol blue as indicator. By deducting the number of c.c. of $N/20$ potassium hydroxide solution from the 20 c.c. of $N/10$ acid and multiplying the remainder by 0.01446 and 50, the percentage of atropine was found.

In the case of cocaine, the difference must be multiplied by 0.01516 and 50 to get the percentage of cocaine. The atropine ointment made in the laboratory gave 2.00 per cent. of atropine by this process. An independent worker found 1.95 per cent. The cocaine ointment made in the laboratory gave 4.09 per cent. of cocaine. Another sample made by another worker and assayed by the same method gave 3.98 per cent. Determinations carried out on routine samples of these ointments gave satisfactory results. The work for this paper was carried out in the analytical and research laboratories of Allen & Hanburys, Ltd.

DISCUSSION.

Mr. MANN asked if it could be indicated why the process first mentioned gave inaccurate results.

Mr. EVERS suggested that probably the alkaloid was not properly extracted by hydrochloric acid from the petrol solution.

Mr. J. R. HILL pointed out that strychnine hydrochloride was somewhat soluble in chloroform, but not strychnine sulphate, and

Mr. EVERS agreed that this seemed to be the only explanation.

The author was thanked for his paper.

The last paper of this sitting was :

The Approximate Estimation of Commercial Cresol in Lysol.

By C. J. JORDAN and F. SOUTHERDEN, B.Sc., F.I.C.

[ABSTRACT.]

THE term "lysol" has come to be associated with products of somewhat varied composition, but it is probably true of most brands to say that they consist essentially of a strong solution of castor- or linseed-oil soap, incorporated with commercial cresol, and it is generally agreed that such mixtures should contain 50 per cent. of cresol. Results would seem to indicate, however, that in some cases insufficient analytical control is exercised in the process of manufacture, and that lysol of reputable make may be very deficient in the most important constituent. The control method to be described has been found a useful check on manufacture, and we venture to submit it in working outline, although the operations involved are well known and the limit of error somewhat large.

Preliminary experiments showed that when commercial cresol of B.P. quality was submitted to steam distillation the amount of cresol taken could be calculated with fair accuracy by adding the observed weight of cresol separating from the distillate to that of the cresol remaining in solution, assuming the solubility of the cresol to be 1 in 50. The following are figures actually obtained in a series of determinations :

Volume of aqueous distillate (a)	Weight of dissolved Cresol (a/50)	Volume of separated Cresol (b)	Weight of separated Cresol (b × 1.04)	Total Weight of Cresol	
				Taken	Found
1450 c.c.	29.0 grm.	25.5 c.c.	26 5 grm.	55.0 grm.	55.5 grm.
470 ,,	9.4 ,,	10.5 ,,	10.9 ,,	20.0 ,,	20.3 ,,
820 ,,	16.4 ,,	29.5 ,,	30.7 ,,	46.5 ,,	47.1 ,,
900 ,,	18.0 ,,	22.0 ,,	22.8 ,,	40.0 ,,	40.8 ,,
750 ,,	15.0 ,,	2.8 ,,	2.9 ,,	17.3 ,,	17.9 ,,
765 ,,	15.3 ,,	35.0 ,,	36.4 ,,	52.0 ,,	51.7 ,,

It was further found that the addition of castor-oil soap or of linseed-oil soap, together with dilute sulphuric acid, before the steam distillation, had no material influence on the results obtained; and experiments were therefore extended to samples of lysol prepared so as to contain known percentages of commercial cresol. 60 to 70 grams of the sample, acidified with 30 to 35 c.c. of dilute sulphuric acid, were steam-distilled until the distillate no longer gave a blue colour with ferric chloride. The whole of the distillate was thoroughly, but not violently, shaken, so as to ensure saturation of the aqueous portion, and the mixture allowed to stand for a few hours. The aqueous layer and the subjacent cresol were then separated by careful decantation and measured. The percentage of cresol (P) was calculated from the formula

$$P = \frac{100}{\text{wt. of lysol}} \left(\frac{\text{Aqueous volume}}{50} + \text{cresol layer volume} \times 1.04 \right)$$

The following results were obtained :

CASTOR-OIL LYSOLS.

Weight of Lysol taken	Volume of aqueous distillate (a)	Weight of dissolved Cresol (a/50)	Volume of separated Cresol (b)	Weight of separated Cresol (b × 1·04)	Total weight of Cresol found	Percentage of Cresol	
						Taken	Found
55·0 grm.	770 c.c.	15·4 grm.	11·3 c.c.	11.7 grm.	27·1 grm.	50	49·5
61·0 ,,	930 ,,	18·6 ,,	12·0 ,,	12·5 ,,	31·1 ,,	50	50·9
52·5 ,,	775 ,,	15·5 ,,	11·0 ,,	11·5 ,,	26·0 ,,	50	49·5
65·0 ,,	980 ,,	19·6 ,,	12·7 ,,	13·3 ,,	32·9 ,,	50	50·5
50·0 ,,	820 ,,	16·4 ,,	8·5 ,,	8·8 ,,	25·2 ,,	50	50·4
50·0 ,,	890 ,,	17·8 ,,	7·8 ,,	8·1 ,,	25·9 ,,	50	51·8
100·0 ,,	1080 ,,	21·6 ,,	19·0 ,,	19·8 ,,	41·4 ,,	42	41·4
73·0 ,,	1070 ,,	21·4 ,,	10·0 ,,	10·4 ,,	31·8 ,,	43	43·5
100·0 ,,	1325 ,,	26·5 ,,	19·5 ,,	20·3 ,,	46·8 ,,	47	46·8
73·0 ,,	993 ,,	19·8 ,,	14·0 ,,	14·5 ,,	34·3 ,,	47	46·6
70·0 ,,	1085 ,,	21·7 ,,	11·7 ,,	12·2 ,,	33·9 ,,	48	48·4
67·0 ,,	990 ,,	19·8 ,,	12·5 ,,	13·0 ,,	32·8 ,,	48	48·7
100·0 ,,	1445 ,,	28·9 ,,	19·5 ,,	20·3 ,,	49·2 ,,	49	49·2
85·0 ,,	1335 ,,	26·7 ,,	16·2 ,,	16·9 ,,	43·6 ,,	51	51·3
56·0 ,,	860 ,,	17·2 ,,	11·0 ,,	11·5 ,,	28·7 ,,	52·2	51·3
60·0 ,,	940 ,,	18·8 ,,	12·5 ,,	13·0 ,,	31·8 ,,	52·2	53·0
100·0 ,,	1450 ,,	29·0 ,,	24·0 ,,	25·0 ,,	54·0 ,,	55	54·0
100·0 ,,	1420 ,,	28·4 ,,	30·5 ,,	31·7 ,,	60·1 ,,	60	60·1
100·0 ,,	1025 ,,	20·5 ,,	3·5 ,,	3·6 ,,	24·1 ,,	25	24·1
100·0 ,,	1100 ,,	22·0 ,,	7·5 ,,	7·8 ,,	29·8 ,,	30	29·8

LINSEED-OIL LYSOLS AND SOFT-SOAP LYSOL.

Weight of Lysol taken	Volume of aqueous distillate (a)	Weight of dissolved Cresol (a/50)	Volume o separated Cresol (b)	Weight of separated Cresol (B × 1·04)	Total Weight of Cresol found	Percentage of Cresol	
						Taken	Found
80 grm.	1225 c.c.	24·5 grm.	15·5 c.c.	16·0 grm.	40·5 grm.	50·0	50·6
*100(1) ,,	1170 ,,	23·4 ,,	27·0 ,,	28·0 ,,	51·4 ,,	50·0	51·4
*100(2) ,,	602 ,,	12·0 ,,	7·0 ,,	7·3 ,,	19·3 ,,	20·0	19·3
*100(3) ,,	745 ,,	14·9 ,,	4·5 ,,	4·7 ,,	19·6 ,,	20·0	19·6
82.0 ,,	875 ,,	17·5 ,,	8·0 ,,	8·4 ,,	25·9 ,,	33·3	31·6
70.0 ,, (S.S.)	1040 ,,	20·8 ,,	10·5 ,,	10·9 ,,	31·7 ,,	45.0	45·3
62.0 ,,	925 ,,	18·5 ,,	13.0 ,,	13·5 ,,	32·0 ,,	50·0	51·6

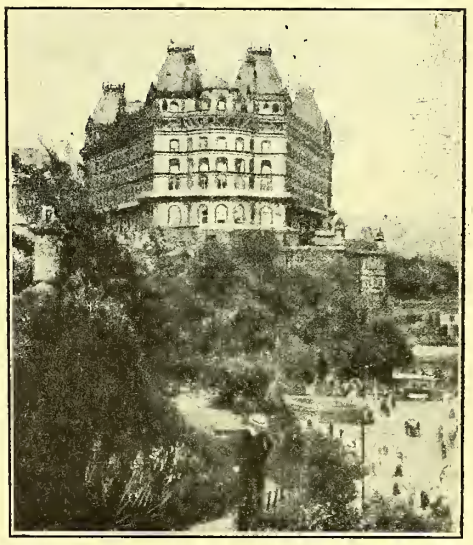
* (1) B.P.C. formula (containing glycerin).
* (2) 20% cresol, 20% soap, 60% water.
* (3) ,, ,, 50% ,, 30% ,,

The results, of course, afford no indication of the percentage of actual cresols unless the composition of the commercial cresol used in the manufacture is known; but this does not materially detract from its usefulness as a check on manufacture. The method was finally applied in the examination of various well-known brands of lysol now on the market, and it is safe to say that in the case of Brands C, D, E, H, and J the percentage is considerably below the standard, and the results would therefore appear to justify our introductory comment. From 60 to 70 grams was taken for each determination.

Brand	Percentage Cresol found	Brand	Percentage Cresol found
A. 1st sample ...	52·0	F.	53·0
2nd ,, ...	51·8	G.	54·9
B. 1st estimation ...	52·5	H. 1st estimation	42·8
2nd ,, ...	53·6	2nd ,,	41·1
C. 1st sample ...	38·4	J. 1st ,,	44·4
2nd ,, ...	35·3	2nd ,,	43·5
3rd ,, ...	40·0	3rd ,,	44·4
D.	46·6	K. 1st ,,	58·1
E.	40·4	2nd ,,	58·8

The experimental work detailed in this paper was carried out in the analytical laboratory of Evans, Gadd & Co., Ltd., Exeter.

The paper was summarised by Mr. C. H. HAMPSHIRE. There was no discussion, and the sitting, after the authors had been cordially thanked, was adjourned at 3.10.



THE GRAND HOTEL : HEADQUARTERS OF THE CONFERENCE.

Practice Section.

At the first meeting of this Section, which took place on Tuesday afternoon, the chair was occupied by Mr. E. M. Chapman (Scarborough), who, after expressing his appreciation of the honour accorded to him, called upon the author to read his paper on

Costing Systems and Pharmacy.

By Herbert Skinner, Ph.C.

Costing systems are steadily acquiring the reputation which once attached to filing systems: you are never sure where they are going to lead you. It was during the war that the system of cost-accounting received its greatest impetus in this country. The need of the Government was for quick delivery, and prices were incidental; a safe method of finding costs was wanted, and costing accountants became a valuable asset of departmental government. The use of the word "systems" does not mean that several are competing with each other; it means each firm must necessarily design or modify one for itself which, however, should comply with certain basic principles common to the industry in order to be effective for its purpose. Nor should it be thought that it means cheapness; it is, rather, the reverse, being almost armour plate against loss or cutting of prices below a remunerative level. The basic principle is that the proper proportion of costs should be added to the primary cost of material plus the required profit. The question may arise how far it differs from the usual method of adding a percentage to primary cost in order to yield the selling-price. The difference is that it substitutes for a speculative return an accurate knowledge of what the return is whenever a sale is made. When the cost of living was rising and wage-adjustments were made on this basis, it was an invariable result, where costing was practised, to show a proportionate increase in price on the articles sold. It was fortunate that manufacturers and wholesalers were able to do this, since it reacted to the benefit of the retail distributor almost without him knowing how it was done. Manufacturers and wholesalers are often found fault with on the question of prices owing to some small firms still working on rule-of-thumb lines and selling articles at an unremunerative rate, covering themselves by "carry-over" principles, but for practical purposes almost always on the rocks. It is a well-known fact that the leading firms systematically work out their costs on scientific lines, and thus are materially helping the retailer to get fair returns on sensitive markets; it is the unscientific methods of the old-fashioned which create the false atmosphere. It is, however, not the factory side which is the object of this paper, but the retail distribution. A well-known argument is made in favour of Trade Boards for the distributive trade because there are so many comparatively small businesses selling on rates which cannot produce returns commensurate with the minimum standard of living, and some modification of a costing system for the distributive trades will surely arise out of the need for meeting the Trade Board minima. An estimation of the profits on returns of twenty popular lines in the pharmacy was made on the outbreak of the Profiteering Act in 1919. The average profit in 1914 was 48.5 per cent., while in 1919 the published retail prices showed a profit of 34.6 per cent. on return. Had it not been for the high market rates, which allowed a trebled turnover, we should surely have had widespread trouble in view of the depreciation of money. It was the high market rates which saved the distributor, and precisely the opposite effect is now being felt with a falling market, though it must be confessed the consumer is not getting the full benefit of the reduction in wholesale rates. In November 1919 the North London Pharmaceutical Association, in view of the Profiteering Act, appointed a committee to investigate a costing system applicable to the retail trade. That report was afterwards reprinted in pamphlet form from The Chemist and Druggist. It set out certain well-defined lines, and in many businesses known to me the system has proved profitable.

Prior to that, at the British Pharmaceutical Conference in London in 1919, and at the London (Western) Pharmacists' Association meeting in May of that year, there was read a paper (published in The Chemist and Druggist) by Mr. C. T. Allen on the application of the costing system to dispensing. Others arose in which the main idea was to place remuneration in dispensing on sounder lines than the old flat-rate system. In Bournemouth an attempt was also made, known as the Bournemouth Dispensing Scale, in which minimum rates were retained, but the general principle of cost was accepted, though the on-cost was put on a 50-per-cent. base, which was a confusion of terms. Mr. Hammond also read a paper before the Sheffield Association which was perhaps the nearest to accuracy. An adaptation was the London Simplified System for dispensing, under which no less than 230 costings were made during the reign of the Profiteering Act, requested, in a large number of cases, by the committees themselves; this system has stood the test for the last two years. The most complete examination of chemists' accounts, however, was for the purpose of the Insurance Investigation Committee in 1915, which resulted in the change-over from the original tariff, with its penalising discounting clause, to the present so-called commercial tariff. It reported that "the main cause of the difficulty was the principle of charging the allowance for establishment expenses in the form of a percentage upon the cost of drugs. The correct measure of applying this is the number of prescriptions dispensed, and the remuneration conveyed . . . should be in a rate per prescription instead of a percentage on the cost of drugs, thus obviating the inequity which is inseparable from the latter system." This would separate the on-cost from the article sold and attach it to the fees, which does not harmonise with the interpretation by the High Court that dispensing was a sale *plus* a fee, given in November 1919 in the Wood Green case. A sale requires that the selling-price shall contain all the elements of cost, *plus* the profit, and if six drugs are to be sold mixed, each one of those drugs, according to its value, ought to bear its due proportion of on-cost. The question of professional fee for compounding should be a thing apart. The adoption of the contrary principle has been one of the sources of trouble in arriving at a satisfactory dispensing-fee since the inception of the present commercial tariff. The principles there laid down are:

(*a*) The principles upon which the tariff should be constructed ought to be simple and self-evident.

(*b*) Each of the component parts of the price payable for any prescription should give to the chemist a return or remuneration for some specific group of his expenses or services.

(*c*) There should be a scale of dispensing-fees per prescription graded solely by the degree of professional time and skill required.

Other recommendations, owing to the incidence of minimum rates, brought some deviation from this and provided for a flat-rate establishment charge based on the average of typical businesses. However, the principles enunciated above are those which should govern any costing system in the pharmacy.

We must first get a clear idea in our minds what we mean by "cost." The easy answer is the general one that it is what you pay for an article, but if you are selling something, that something represents a number of costs gathered together and enhancing the value by the labour expended; it is the initial cost *plus* the value of the services together with the profit expected from merchanting the material which produces the selling price. Three units stand out: (1) Material, (2) labour, (3) on-cost. These three units may be further refined, since in "on-cost" we usually include the group of expenses expressed as space in stores, dispensing department, or window- and display-cases. These latter have a distinct value in returns and remuneration in goods or kind, in the same way as a firm gets a return from plastering a wall with enticing posters. This, however, is a refinement which is better left to be settled when a sound method of allocating costs is adopted. In the on-cost we include rent, rates (poor, general, and water), light,

insurance, telephone, sundries such as paper, labels, corks, string, depreciation in stock and breakages, postage, stationery, cheques, interest on stock and current account, etc. Each one can find his own factor, bearing in mind that every 1*l*. on-cost means 1 per cent. on 100*l*. turnover, and that suitable multiplication and division will enable anyone to arrive at the necessary addition, whether due to increased rent, rates, taxes, or wages, which must be made if the vendor wishes to pass on the increased cost to the consumer.

Analysis is the key of costing systems, and from the above it is obvious a certain amount of labour is involved in analysing out the various factors. The re-costing of a business with 3,000*l*. turnover under a rental of 100*l*. showed an hour cost basis of 29.4*d*., with the sundry costs amounting to 4.0*d*., making a total of 33.4*d*. per hour on-cost. The apportionment of space is the next factor which should be considered, so that the allocation of on-cost charges can be made. Display space is valuable, and, as previously pointed out, should be made to return its cost. But the real difficulty in allocating on-cost is the general absence of a stores section supplying the pharmacy. This latter should be an entity in itself, with the appendages of a dispensary and stores, whereby stock is more easily kept liquid. But this would lead us into a question of business organisation, which is not the object of this paper. The difficulty is to convert this on-cost of 33.4*d*. per hour into the necessary percentage required to be added to the cost of material. The average turnover per hour for 3,000 hours is 240*d*., the whole costs worked out as follows :

	d.
On-cost	33.4
Labour	27.6
Management	24.0
Material	145.0
Profit	10.0
	240.0*d*.

This leaves an average addition to each article of 39.5 per cent. on return in order to cover the charges set forth. A comparison with the Peat figures for 1913-14 is interesting. The gross profit on the whole business was 42.2 per cent. on returns and 41 per cent. in 1911-12, on the drug business alone 48.3 and 47.3 respectively, while on the other business 28.8 and 29 per cent. The figures are altogether in favour of costing out, since "Management" is the employer himself in such a business, and a remuneration for him was only partially calculated on management expenses. Averaging the returns supplied me, I come to the conclusion that an average addition to unity cost of 0.75 is satisfactory; this yields 42.8 per cent. on return, but this cannot be applied as a flat rate, which is sometimes done; attention should be given to the analysis of turnover in relation to goods sold, while compensation has to be made for the variety of the trade done.

This question of the nature of turnover is extremely important. Quite a number of pharmacists, to whom thanks are due, have analysed their turnover and placed their results at my disposal, but to bring about anything like agreement in percentages would be impossible. It remains true from every case investigated that the nature of turnover may be a making or destroying factor, depending on whether we apply intelligence or guesswork. The most satisfactory analysis sent me was of sufficient importance to induce a closer examination. The pharmacist had been in charge of a company shop for some years, and was imbued with the notion that the proper return percentage for a competitive business was 33⅓ per cent. The fact that his previous experience might be a source of danger did not occur to him; he had courage and ability quite sufficient to ensure him success, and the joy of business was in his veins, but he nearly "came unstuck." The business gave a return of 1,760*l*. He took over a junior (a boy), and threw himself into the business. On analysis later it was found that drug sales, including dispensing, were 40 per cent., proprietaries 25 per cent., sundries 15 per cent., toilet 7 per cent., photographic 3 per cent., own goods 10 per cent. On proprietaries it was estimated that the percentage on returns was 25 per cent., which is rather high; on own proprietaries 50 per cent., but his costings on production were more than suspect. The remainder were worked on the simple principle of adding 50 to cost and producing 33⅓ on return. He neglected his own services, and took the gross return after paying all costs as a net return to pay for his own cost of living and his own services. The figures were :

	d.
On-cost	19.0
Labour	18.0
Material	94.6
Gross profit	8.4
	140.0*d*. per hr.

In other words, he was making the sum of 210*l*. per annum to pay all his personal expenses and profit, and actually worse off than he was as a manager. Acting on the principles laid down, that 1,760*l*. per annum was well over 2,000*l*. in the next return, and material costs had slightly receded, the whole thing was a question of adjustment of his charges to suit the business and his turnover. One point it is necessary to make, which is, to keep accurate records of goods bought so that the turnover can readily be seen and serve as a guide in purchasing favourably. A chart of daily returns is also an advantage. A temperature chart serves, with the suitable figures at the side marking the rise and fall. In order to be able to see at a glance how the business is going, a red line showing the required standard should be drawn at the appropriate figure, and a black line showing the daily variation. So long as above the red line balances below the line, we know the business is not receding, and in any case it provides interest and a stimulus to further effort. These results, together with an accurate analysis of purchases, should be of great value in keeping prices and profits at a margin commensurate with the services rendered. Above all, a costing method serves to encourage discipline in business, a thing which is needed by employers and employed alike.

There are many other points I would wish to have analysed out, such as the cost of production where the pharmacist makes certain galenicals and packs certain lines, as well as makes and packs his own proprietaries—many pharmacists undercost and find it is not a paying proposition, without understanding why; the system of stockkeeping and allocation of prices to the various drugs and other articles sold; the best method of keeping a stock liquid, and yet being able to supply all needs; co-operative buying and some of its fallacies; while dispensing and the allocation of costs deserves a paper by itself.

Costing is a fascinating subject, and there is only one danger worth being warned against—that the fascination in analysing the business and applying to it scientific method may easily warp one's judgment and lead to complicated method and expense which is not warranted. The simpler the system the better.

To sum up, it means the application of some of the analytical skill which we all ought to have secured in our scientific training. That many will go on and prosper with rule-of-thumb methods is undoubted. We have almost all been making the same mistakes, and it is only when some of the youngsters open a business against us and cut deeply into our equanimity and our margins that we realise we have allowed our analytical training to go to seed.

DISCUSSION.

Mr. MELLOR criticised some of the author's remarks. He contended that costing systems can only be applied when chemists drop the idea that every other chemist is a competitor. Retailers did not put up prices so soon as costs went up. In his business it was found, by comparing the results achieved in the corresponding days

of the week throughout the year, that it was easy to trace the progress of the business in several directions.

Mr. MARNS paid a tribute to the "London" simplified system of costing, and showed by illustration that the list charges were not excessive, as some pharmacists have alleged.

Mr. JOHN D. MARSHALL gave an outline of the costing methods at the well-known pharmacy in Wigmore Street, London, W., where the cost is revised fortnightly. Their retail prices were not immediately elevated when wholesale charges increased; consequently they were not being excessively reduced. Chemists, where prices are concerned, should stick together, and then they would be backed up by the public. Every prescription dispensed at his establishment is privately marked to enable others to charge the same.

Mr. LEAN considered that, owing to the various classes of businesses and the various departments in each business, it would be difficult to arrange a system of costing for chemists. He suggested a national private mark. Many articles are of a fixed price and, as it is impossible to adjust the profit on these, other articles have to bear the brunt. Accurate annual stock-taking affords the most valuable means of fixing and regulating prices.

Mr. H. S. WATSON, in the course of some characteristically cheery remarks, mentioned that pharmacists owed a debt to Messrs. Allen and Skinner for their work in connection with pricing systems. Fewer mutual jealousies between pharmacists should exist. Pharmacy is rotten from within, rather than without.

Mr. STILES asked for some elucidation of Mr. Skinner's figures.

Mr. EVANS (Bath) considered that the scientific system of costing would be the salvation of pharmacy. Chemists should not be afraid to charge, as the public judges them at their own value. A national mark was not practical, owing to the variation of businesses. He thought that uniformity of charges, with variations for local areas, would be more suitable.

Mr. MELLOR raised the point that customers are anxious enough to take advantage of the decrease in price, forgetting how they objected to the increases.

Mr. KEITH expressed appreciation of Mr. Skinner's paper, mentioning that he, in an industrial district, gets, on the London price list, the same prices as chemists situated in West London.

Mr. WATSON mentioned that the time taken by some assistants in dispensing was longer than that taken by others, and in arranging a time charge this had to be accounted for.

Mr. JAMES JACK paid a tribute to the paper, remarking that in Scotland profits were adjusted to suit the war. Chemists need not bother about costs, but had only to accept the London Retail Price List, or in Scotland the equivalent, the Glasgow List, and their profits would be satisfactory. He did not agree with several speakers, and considered their ideas involved a waste of time, particularly in a large mixed business.

Mr. MILNER (Greenwich) congratulated Mr. Skinner. A private mark was not, he thought, practical. The prices and profits on chemists' "own preparations" were in many cases in need of drastic revision.

Mr. J. P. ELLERINGTON mentioned that the Profiteering Act had done chemists a lot of good, more profit being made out of dispensing now. In reference to the charges for dispensing, he instanced the case of businesses where the dispensing is in rushes, and it is necessary to keep a large staff of assistants to cope with it. Then there comes the quiet time when girls at 25*s*. a week could do the same work in a better manner. This was a point which had not been brought out sufficiently in the charges under the Profiteering Act. He inquired as to the rates at which double quantities of prescriptions should be charged.

Mr. CHAPMAN compared the gross profits earned by a chemist's assistant with those earned by a grocer. Chemists, he declared, are underselling their capabilities, and he considered that a flat rate could not be charged, even in a town, owing to the various types of businesses.

Sir WILLIAM GLYN-JONES expressed the opinion that reports of the meetings might be of value to the Income Tax Commissioners.

Mr. SKINNER then dealt with the questions. He saw no reason, he said, why a chemist should worry as to what his *confrère* was doing down the street; to change one's prices frequently on account of a competitor was cutting one's throat. The Profiteering Act was a boon as well as a great nuisance. Dealing with the reduction of prices, he cited the case of liquid extract of ergot, which he considered should be charged at current rates. Some changes of price cannot be passed on to the consumer, owing to the smallness of the change, as in the case of Epsom salts. The tendency now was to lower prices where such lowering was not justified; this was due to guessing instead of using a scientific system. Moreover, the profit was not raised proportionately when the markets were rising. It was not possible for every drug to bear a proportion of the cost *plus* profit, owing to the variations in rents, rates, etc. He was of the opinion that chemists are afraid to charge. The public will pay a reasonable profit if they are convinced that a definite system is being employed and arranged on a scientific basis. A private mark is of no great value, owing to the fluctuations in prices. All drugs in the "London" price-list have been revised, and, where possible, the charges have been passed on to the consumer. In connection with chemists' own proprietaries, he instanced a case in which a pharmacist was selling a preparation at practically the cost of the ingredients. Neither private prescriptions nor Insurance prescriptions pay unless there is a sufficient number to keep the assistants occupied, and the speaker expressed a doubt if an adequate fee will ever be obtained from the Ministry of Health. Rush-hour trouble exists in all businesses—even railways—but the question of solving the trouble is not considered an impossible one. Perfumery has been over-taxed, and, like the champagne duty, the tax will have to be revised. As regards double quantities of mixtures, the double price should not be charged, as the cost of compounding is not double. The sale-prices of drugs may not vary much, but for prescriptions the ratio in some businesses must vary considerably owing to overhead charges. Even the grocers are working out a costing system for themselves, and are insisting on a higher ratio of profit. Mr. Skinner referred to the question of the dispensing of prescriptions for a next-to-nothing profit as a bait. He was anxious to impress upon his hearers the necessity for adopting a scientific system of prices, and so procure a proper remuneration for money invested.

The proceedings closed with a hearty vote of thanks to Mr. Skinner.

Wednesday Morning, June 15.

Science Section.

A few minutes after the appointed time a fair number of Conference members assembled in the room used by the Executive Committee. None of the authors was present, and Mr. C. H. Hampshire acted as reader throughout the sitting.

The first paper presented was:

An Examination of Commercial Bismuth Phenate.

By C. E. CORFIELD, B.Sc., Ph.C., F.I.C., and G. R. BOYES, Ph.C., A.I.C.

[ABSTRACT.]

BISMUTH PHENATE was at one time used and recommended as an intestinal antiseptic, but of recent years its use appears to have been discontinued. From time to time several different samples of bismuth phenate have been brought to the authors' notice. These samples showed an obvious difference in physical properties and appearance; in some cases chemical examination failed to reveal the presence of more than slight traces of phenol. For the purpose of this investigation a number of different samples were obtained from various wholesale and manu-

facturing houses. Several samples were submitted to examination.

Qualitative Examination.—A portion of each of the samples was extracted with sodium carbonate solution, and the solution, after filtration, was tested for chlorides and for nitrates. The results of the qualitative tests are shown as follows:

—	A	P	C	D	E	F
Chloride	–	traces	–	–	–	traces
Nitrate	–	traces	–	–	+	traces
Nitro-phenols ...	–	+	–	–	+	+

Quantitative Examination.—The bismuth was determined by ignition at a low temperature, below fusion, and calculated as Bi_2O_3. The phenol was separated by steam-distillation after liberation with hydrochloric acid, and determined in the distillate by Koppeschaar's volumetric method, in which the phenol is precipitated as tribromo-phenol by a solution of sodium bromide and bromate in presence of hydrochloric acid; after standing fifteen minutes, potassium iodide is added, and the liberated iodine titrated against standard thiosulphate solution. A preliminary qualitative examination for nitrogen made it clear that a quantitative determination of this element was necessary. The total nitrogen was therefore determined by a modification of the Kjeldahl process. The method used was an official method of analysis issued by the Board of Agriculture and Fisheries (Statutory Rules and Orders, 1908, No. 964). The nitrogen present was calculated as nitrate radicle, NO_3. The results of these determinations, together with the physical properties, are as follows:

	Colour	Odour	Solubility in Conc. HCl	Per-centage of total Nitrogen, calculated as NO_3	Per-centage of Bi, calculated as Bi_2O_3	Per-centage of Phenol, C_6H_5OH
A	greyish-white	phenol	complete	2·55	84·24	3·52
B	greyish-brown	nitro-phenol	complete	3·26	82·82	2·65
C	white	none	complete	0·00	82·28	11·40
D	greyish-white	none	complete	3·38	86·55	4·56
E	grey	none	incomplete	3·35	84·40	4·06
F	greyish-brown	phenol	incomplete	3·03	81·18	1·99
G	brown	none	incomplete	not determined		traces

The Codex gives the formula of bismuth phenate as $C_6H_5OBi(OH)_2$, which requires 27.89 per cent. of phenol, C_6H_5OH. It will be seen from the figures given above that none of the samples of bismuth phenate of commerce contain an amount of phenol approaching that required by the formula given. Furthermore, the percentage of bismuth required by the Codex formula is 69.28 per cent., calculated as Bi_2O_3, whereas the amount actually found in the samples examined is considerably in excess of this calculated value. Martindale, while stating the formula as $C_6H_5OBi(OH)_2$, gives the phenol content as "about 20 per cent."

The percentage of nitrogen, calculated as NO_3, found to be present in these samples is of importance, 3 per cent. of NO_3, radicle corresponding to 14.7 per cent. of $BiONO_3.H_2O$, or to 6.7 per cent. of nitro-phenol, calculated as $C_6H_4(OH)NO_2$.

These investigations have shown clearly that bismuth phenate of commerce is not the substance described in the Codex, so that it became of interest to ascertain if it is possible to prepare, by double decomposition, a compound which on analysis would yield the results demanded by the B.P.C. description.

As a result of numerous experiments, the authors found that the following method yields a product containing 14.76 per cent. of phenol, the maximum phenol content which it has been possible to obtain by any of the methods of preparation so far employed.

Sixty grams of bismuth oxynitrate was dissolved in 45 c.c. of 70 per cent. nitric acid, diluted with 150 c.c. of water, and added very slowly to a solution of 42 grams of sodium hydroxide and 20 grams of phenol in 750 c.c. of water, with constant stirring. The product, separated by filtration, was washed with cold water and air-dried. The filtrate was neutral. The yield was 58 grams of a light amorphous white powder, which on analysis gave the following results:

Bi_2O_3	81.93	per cent.
C_6H_5OH	14.76	,, ,,
Nitrogen	0.00	,, ,,

Thus it will be seen that, so far as these investigations have been carried, it has not been possible to prepare a phenate of bismuth which corresponds either in colour or in chemical composition with the substance described in the Codex monograph. It may be stated that the composition of commercial bismuth phenate does not represent a compound from which satisfactory results may be expected when used as an intestinal antiseptic, and this fact, together with the great variation shown by the different samples examined, may account for the failure of this compound to be established as a substance of therapeutic value.—Paper from the Chemical Research Laboratories of the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, London, W.C. 1.

DISCUSSION.

Mr. C. A. HILL expressed his gratification at the appearance of the paper, as he was mainly responsible for the subject being on the research list. The authors, though they had only obtained a phenol content of 14.76, had certainly carried us a step further.

A vote of thanks was passed to Messrs. Corfield and Boyes.

The next paper was:

The Nature and Composition of Irish Moss Mucilage.

By PAUL HAAS, D.Sc., Ph.D.

[ABSTRACT.]

EXPERIMENTS carried out *in vitro* by the author demonstrate the stability of carrageen towards the digestive juices. Thus, while saliva had comparatively little action at body temperature, a certain amount of hydrolysis was effected after some hours' incubation at 50° C., as judged by the reducing action of the solution upon Fehling's solution; on the other hand, hydrochloric acid at a strength approximating to that obtaining in the gastric juice had comparatively little action after three hours' incubation at blood heat, but a much more marked effect at 50° C. Heated on a boiling-water bath for only a few minutes with a 5-per-cent. solution of citric acid, carrageen loses its gelatinising power, a fact which explains the difficulty experienced in making jellies flavoured with lemon juice. It is possible that carrageen may exert therapeutic action owing to its physical properties, since, unlike gelatin solutions, it retains a certain viscosity even when hot. Irish moss, after exhaustive extraction with cold water, yields to hot water a further substance, distinct from that obtained by cold water. The hot and cold extracts, briefly referred to as H.E. and C.E. respectively, have different physical and chemical properties. Emulsions of cod-liver oil prepared with a solution of H.E. are very stable, while those compounded with C.E. are relatively unstable. The stability of emulsions made with an ordinary hot-water extract was found to be intermediate between the two. While the C.E. dissolves readily in cold water, the H.E. requires heating to effect any appreciable amount of solution. At a strength of upwards of 1 per cent., such solutions tend to gelatinise on cooling; 3-per-cent. solutions yield a fairly stiff jelly melting at about 27° C.; 5-per-cent. solutions, on the other hand, form jellies melting at approximately 41° C., thus enabling them to be used for solid culture media at temperatures at or slightly above blood-heat. The gelatinising power of carrageen is not affected by pro-

longed boiling in neutral solution or by sterilisation in an autoclave.

There was no discussion, and the PRESIDENT expressed the thanks of the Section to Dr. Haas.

The next paper was :

Action of Heat and Moisture on the Activity of Ergot and Extract Ergotæ Liq.

By CAPTAIN G. TATE, I.M.S.

THE activity of the various liquid extracts was compared by testing their action on the isolated virgin guinea-pig uterus suspended in 60 c.c. Locke solution at 37° C. Of the three known constituents of ergot, ergamine always produces contraction of the uterus; ergotoxin and tyramine usually produce no action or relaxation on a perfectly fresh virgin guinea-pig uterus, but these drugs produce contraction in a uterus which has been rendered irritable by exhibition of drugs. The first few responses of a virgin guinea-pig uterus to ergot are, therefore, variable, but after this the responses are fairly regular, and give a good idea of the relative activity of various samples. Some extractum ergotæ liquidum which was stated to be physiologically standardised was obtained from a well-known firm. When this extract was heated in an incubator at 38° C. for twenty-five days there was an apparent loss in activity. Another portion of the same extract was heated at 50° C. for seventy-two hours (six hours a day for twelve days). When tested on a uterus its activity was found to have decreased to a considerable extent. This extract was heated for a further twenty-four hours (four days of six hours) at 50° C., but after twenty-five days there was no apparent loss in activity. Some powdered ergot was divided into five equal portions. A liquid extract was made from one portion and used as a control. A liquid extract was also made in the same way from equal weights of the other portions after they had been heated and dried.

Powder	Temperature	Time	Result
Dry	30°C.	25 days	No change
Moist	38°C.	25 days	(Slight)
Moist infected mould from old solution ...	38°C.	25 days	No change
Dry	50°C.	72 hours (12 days)	– (Slight)
Moist, a fungus formed on top	50°C.	72 hours (12 days)	+ (Slight)

From the above experiments it would seem that under favourable conditions there is a likelihood of a small increase in activity when ergot is stored.

Some extractum ergotæ liquidum manufactured in Madras from imported ergot was next examined. The ergot is sent out to India in sealed bottles about five-sixths full. It is usually stored for two or three months and then powdered and made up in the usual way into the liquid extract. The liquid extract was not stored in India before being sent to London, so that any changes which may have occurred in its activity must have taken place either when it was stored or during the time that it was being powdered and made into extract. As the extract was made in the cold weather, the probability is that most of the change in activity occurred during the period in which it was stored.

This Indian extract produced a greater contraction both in the isolated guinea-pig uterus and in the uterus of a kitten than did the English extract. The activity of these two liquid extracts was also tested on two white Leghorn roosters of about the same age, and the extracts were administered alternately to the birds after intervals of four days. In this case the Indian extract was not found to be more active than the standardised English extract—it was very slightly less active.

It was not possible to obtain any ergot before it had been sent out to India, so no very definite conclusions can be drawn. The increase in activity probably takes place while it is being stored, and the increase in activity in the extract is probably due to tyramine or ergamine, which did not show when the Indian extract was tested in fowls.

The liquid extract appears to be more susceptible to heat than dry ergot, and moist ergot under favourable conditions is probably likely to increase in activity; therefore it would be advisable to send out the ergot powdered and dry and in airtight containers. The liquid extract should be stored in a room the temperature of which is kept below 80° F.

The above experiments were made in the pharmacological laboratory, University College, by permission of Professor Clark.

DISCUSSION.

Mr. E. WHITE suggested that the test might not be reliable unless repeated a number of times; moreover, it was founded on an assumption which ought to be checked. The paper should be criticised by physiologists.

Mr. FRANKLIN remarked that his own experience as to the increased activity of ergot on keeping coincided with that of the author.

Mr. E. W. MANN had also had experience in this respect, and confirmed the previous speaker's statements.

Mr. HAMPSHIRE said that these are bases corresponding to amino acids—tyrosine and histidine—and it is likely that the loss of carbon dioxide takes place on keeping.

Mr. EYRE (Scarborough) had found that pearl-coated pills have superior keeping qualities to those of liquid extract of ergot.

Mr. FINNEMORE remarked that, when proteins decompose, amino- acids are formed which are likely to be active. This goes to prove that the observations are founded on something definite.

The PRESIDENT considered that the paper would prove of great interest in the future, and expressed the thanks of the Section to the author. It was pointed out that the tracing officially published had accidentally been transferred to another page and inverted.

The next paper was :

Keeping Qualities of Infundibular Extract.

By CAPTAIN G. TATE, I.M.S.

[ABSTRACT.]

LIGHT.

FOUR ampoules of infundibular extract, two amber-coloured and two white, were exposed for one hour at a distance of 8 in. to the action of Finsen light and mercury vapour respectively. The glass of the ampoules, both amber-coloured and white, apparently prevented any action, as there was no difference in activity when tested on the isolated uterus of a virgin guinea-pig. The contents of two ampoules were emptied into two shallow receptacles, the mouths of which were half an inch in diameter, and the contents exposed to Finsen light and mercury vapour for one hour, at a distance of about 8 in. The extract exposed to the action of mercury-vapour light was found to have deteriorated about 5 per cent. When one considers that the ampoules are usually stored in boxes, there appears to be little likelihood of light causing much deterioration.

HEAT AND ACIDITY.

These two factors have to be considered together. Judging from the results obtained by other workers, one might expect that a liquid extract which would stand boiling for half an hour without any appreciable loss in activity would be thermostable and probably not undergo any greater deterioration in a tropical climate than it would when stored for the same period in a temperate climate. The following experiment was done with a view to seeing whether an increase in the acidity of a thermostable extract would have any effect when it was exposed for twenty-five days to the average temperature of a large sea-coast town in India—i.e., about 38° C. [100°4 F.]

An ampoule of infundibular extract made by a well-known firm was boiled for half an hour, and was found to have undergone no decrease in activity when tested on the isolated uterus. Different strengths of acetic acid were added to five ampoules of the same make, and these were then sealed and placed in an incubator at a constant temperature of 38° C. for twenty-five days. The acidity varied from 0.2 per cent. to 2 per cent., but there was no variation in activity when tested by the isolated uterus

method. One ampoule of infundibular extract of another firm was heated for half an hour without showing any appreciable loss in activity. An ampoule of the same make which had been stored in India from March 1920 to November 1920 was tested and found to have deteriorated about 30 per cent. The acidity of this sample was practically the same as that of a fresh sample of the same make. An ampoule out of a box which had been stored in India, and from which the previous sample had been taken, was placed in an incubator at 38° C. for twenty-five days, and also heated to 50° C. for forty-eight hours. It was found to have undergone a further loss in activity when compared with one out of the same box, but which had not undergone any further heating. An ampoule of the same make, which had not been sent out to India, placed in an incubator at 38° C. for twenty-five days, and also heated to 50° C. for forty-eight hours, showed no change in activity when compared with an unheated ampoule. The above experiment shows that this make is thermostable when boiled for half an hour; yet samples of the same make and of the same acidity had deteriorated in a tropical climate. The heating, spread over some months, also seems to have rendered the protein complex more liable to dissociation, as ampoules stored in India underwent a further loss of activity when heated, while a fresh sample under the same conditions had not altered in activity. It would seem that the test boiling for half an hour of an extract is not of much use in selecting a suitable make of infundibular extract for the tropics. The best means of preventing excessive deterioration would probably be to keep such drugs in a store-room the temperature of which is not allowed to rise above 80° F.

The above experiments were done in the Pharmacological Laboratory of University College by kind permission of Professor Clark.

DISCUSSION.

Mr. GAMBLE said that this was a difficult subject, and urgently required work on a more elaborate scale. No solution of any acidity tried could be boiled without considerable deterioration. One continually got discordant results in physiological testing. The United States Pharmacopœia standard, introduced as authoritative, was soon found to be absolutely useless. There was a steady deterioration in these solutions in this country—a deterioration that probably went on more rapidly in warmer climates. This paper led to no definite conclusion, and it was difficult to compare the acidities given. Some makes of the preparation were regarded as too active by those who used them, and a definite standard was wanted.

Mr. FINNEMORE referred, by way of illustration, to his experience in trying poisonous gases during the war. Only once a day could he obtain comparable results. It would appear that some nostrils had much better filtering properties than others; one man, indeed, with a large nose was practically unaffected during a test. (Laughter.)

Mr. T. MALTBY CLAGUE thought that experimenters needed to standardise not only the substance but the man; a disadvantage in physiological testing arose from the absence of a standard human being. It was found on active service that men from the works of the United Alkali Company suffered less in gas-attacks than others. He deprecated the too ready adoption of a physiological method as a standard method for scientific men.

Mr. EVANS (Bath) said that prescriptions came rolling in nowadays for all the animal extracts, and medical men had many questions to ask the pharmacist about them—e.g., the relation between thyroid gland and the corresponding dry extract.

Mr. HAMPSHIRE, replying to a criticism, said that one point had been brought out clearly in the paper—that it was not possible to accept half-an-hour's boiling as a test of stability.

The PRESIDENT, in expressing the thanks of the Section to the author, pointed out the desirability of trying to get into touch with men engaged in pharmacology or in physiological testing. He would be glad to hear a paper on the principles of physiological testing.

The next paper was:

Determination of Hydrocyanic Acid.

By C. E. CORFIELD, B.Sc., F.I.C., Ph.C., and C. J. EASTLAND, Ph.C.

AT the last meeting of the British Pharmaceutical Conference there was read a paper by R. Leitch Morris (*C. & D.*, July 24, 1920, p. 92), in which he made an excellent comparative *résumé* of the different methods which have been adopted for the determination of cyanides. In his summary he suggested that any defect in the B.P. process (Dénigès' modification of Liebig's process) might be due to the use of insufficient quantity of potassium iodide, the mass concentration of the latter being smaller at the end of the titration in the official process than is the case in the similar processes of the U.S.P. and French Pharmacopœia. It was also stated that a considerable excess of ammonia does not interfere with the accuracy of this determination. With a view of coming to some decision on these two points, the following determinations have been made. Five c.c. of a sample of HCN (described as B.P.) were titrated against $N/10$ $AgNO_3$ solution using (1) varying quantities of solution of ammonia; (2) varying amounts of solution of potassium iodide. In all cases the final volume of the cyanide and ammoniacal potassium iodide mixture was brought up to 60 c.c. before titration. All the results recorded were obtained on the same day, and the strength of the solution checked at intervals by titration with the B.P. quantities.

I.—EFFECT OF VARYING CONCENTRATION OF AMMONIA.

HCN dilute taken	KI Solution	Ammonia Soln.	Total Volume	Reading (Mean in c.c.)	% of HCN
5 c.c.	3 drops	5 c.c.	60 c.c.	16·4	1·722
5 c.c.	3 drops	10 c.c.	60 c.c.	16·5	1·783
5 c.c.	3 drops	20 c.c.	60 c.c.	16·6	1·794
5 c.c.	3 drops	40 c.c.	60 c.c.	17·25	1·864

Guerin's modification of Liebig's process—viz., neutralisation of the HCN by means of a 3 per cent. solution of borax—gave the same result.

II.—EFFECT OF VARYING CONCENTRATION OF POTASSIUM IODIDE.

HCN	Ammonia solution	Total volume	Soln. KI	Readings (mean)	% HCN
5 c.c	5 c.c.	60 c.c.	3 drops	16·4 c.c.	1·772
5 c.c.	5 c.c.	60 c.c.	6 drops	16·4 c.c.	1·772
5 c.c.	5 c.c.	60 c.c.	10 drops	16·4 c.c.	1·772
5 c.c.	5 c.c.	60 c.c.	1 c.c. (approx. 26 drops).	16·4 c.c.	1·772
5 c.c.	5 c.c.	60 c.c.	10 c.c.	16·4 c.c.	1·772
5 c.c.	5 c.c.	60 c.c.	20 c.c.	16·85 c.c.	End points obscure.
5 c.c.	5 c.c.	60 c.c.	40 c.c.	19·5 c.c.	End points obscure.

These results indicate that an excess of ammonia solution does affect the readings, the latter increasing with increased concentration of NH_3. The error, however, is small if a moderate excess of ammonium hydroxide is used. The solubility of silver iodide in ammonium hydroxide (10 per cent. NH_3) is given by Longi as 1 gram AgI in 26,300 grams of NH_4OH. It is insoluble in 5 per cent. solution of ammonia, and hence error due to solubility of the AgI commences when more than 20 c.c. of ammonium hydroxide is used. With regard to the effect of varying concentration of potassium iodide, it would appear that increase of the latter has no influence until quantities of the official solution of KI exceeding 10 c.c. are used. Higher readings are then obtained, but the end point is indefinite. This result is in accordance with the solubility of AgI in KI solution as given by Schierholz.

GRAMS PER 100 GRAMS SOLUTION.

KI.	AgI.
40·0	13·0
25·0	2·75
20·0	0·80

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From these figures it is obvious that the solubility of silver iodide in potassium iodide solution is not appreciable until the latter is of a comparatively high concentration.

The work for this paper was done in the Chemical Research Laboratories of the Pharmaceutical Society of Great Britain.

There was no discussion, and the authors were thanked in the name of the Section.

The President, in announcing the reading of the next paper, expressed his great regret and that of the meeting that Mr. James Grier had not arrived. The subject, with the details of which Mr. Grier was so familiar, was of great importance.

The following is an abstract of the paper :

The Assay of Colchicum by the Phospho-Tungstic Method.

By Edward C. Davies, B.Sc.

[Abstract.]

Colchicum seed in No. 60 powder, 5 grams, is exhausted with 100 c.c. of 70 per cent. alcohol, which is then evaporated off by means of a water bath and the colchicine in the residue taken up with three successive portions of 20 c.c. each of water. The combined solutions are filtered into a separator, washing the filter paper with a little water; the impure alkaloid is shaken out, using four successive portions of chloroform of 20, 15, 15, and 10 c.c. The combined chloroform solutions are evaporated on the water bath, yielding a dark yellowish varnish, which is taken up with 30 c.c. of hot water and filtered into a beaker, the filter being washed with a little water. To the cooled filtered solution is added 3 c.c. of phospho-tungstic acid solution, and then 7 c.c. of dilute sulphuric acid. (Phospho-tungstic acid solution may be readily prepared by mixing together 10 grams of sodium tungstate and 6 grams of sodium phosphate, dissolving in 50 c.c. of water and acidifying the solution with nitric acid.) The colchicine is precipitated in a granular form; it is transferred immediately to a centrifuge machine, using a little water to wash all the precipitate into the centrifuge tubes. The precipitate is completely brought down in five minutes, and the clear solution decanted off. The precipitate is next suspended in the tubes in water by means of stirring or shaking, and transferred to a separator, washing the tubes with more water. This suspended precipitate may be decomposed by :

(1) *Chloroform.*—If 30 c.c. of chloroform is added to the separator and the liquids are shaken vigorously, this precipitate is decomposed into free colchicine and phospho-tungstic acid. The layers are allowed to separate, the chloroform layer being drawn off. A further 10 c.c. of chloroform is added and shaken out. The combined chloroform solutions are evaporated on the water bath, a little alcohol added to the residue, and again evaporated until constant in weight.

(2) *Alkali and Chloroform.*—20 c.c. of chloroform is first added, then a very weak solution of alkali—10 c.c. of $Ca(OH)_2$ solution or 10 c.c. of a 1-per-cent. solution of ammonia. On gentle shaking the precipitate decomposes, the alkaloid dissolving in the chloroform; the chloroform layer is drawn off, and the solution shaken with two successive portions of chloroform of 10 c.c. each. The combined filtered chloroform solutions are evaporated as in (1). It is essential in decomposing by alkali to have chloroform present, as colchicine and alkali form a yellow colour in a few minutes which is difficult to remove with chloroform. The colchicine phospho-tungstate could be ignited, the residue (consisting of $P_2O_5.WO_3$) weighed, and the percentage of alkaloid in the drug thus determined.

The advantages of the method are : (1) Purity of alkaloid as compared with the U.S.P. and Farr and Wright's methods, and direct determination of colchicine as compared with Lyons' method; (2) it is quite as easily carried out as the Farr and Wright's process, and takes no longer.

The following methods of assay were carried out :

Method	Percentage—Seeds	Percentage—Corm	Remarks
Lyons' and Remington's	0·72	0·42	In this process the alkaloid is not weighed. The alkaloid is weighed with resinous bodies, then dissolved out by acid and resinous bodies weighed, the difference being colchicine
U.S.P. and B.P.C.	0·70 0·68	0·41 —	The alkaloid was dark brown in colour
Farr and Wright's	0·75	—	Alkaloid yellowish-brown in colour
Phospho-tungstic	0·75 by (1) 0·72 by (2)	0·38 by (1) 0·40 by (2)	Alkaloid yellowish (only) in colour.

There was no discussion; the thanks of the meeting were accorded amid applause.

The final paper of the Science proceedings, like the preceding one, was to have been presented by Mr. Grier. The following is an abstract :

Pharmacology of Digitalis.

By Karam Samaan, M.Sc., Ph.C.

[Abstract.]

The author undertook an investigation of the relative toxicity and pharmacological action of various concentrated infusions of digitalis on the whole heart of the frog, with special reference to the solvent used in preparing the concentrated infusion, as well as the effect of keeping the preparation. These samples of concentrated infusions of digitalis—prepared from the same lot of leaves—were supplied by a firm for the purpose of physiological testing. One of these infusions was prepared by the B.P.C. method, i.e., by macero-expression of the digitalis leaves with 0.1 per cent. chloroform water, the alcohol being added afterwards. The other two infusions—one of which was examined when fresh—were prepared by percolation with alcohol 20 per cent. The infusion prepared by the B.P.C. process and one of the infusions prepared with 20 per cent. alcohol were sent under blank covers, and therefore these are designated as samples "A" and "B"; both were examined four weeks after their preparation. In addition to the above three samples the author obtained from Mr. J. Grier an old concentrated infusion of digitalis about twenty-five years old, i.e., this infusion was prepared when the 1885 B.P. was in force. It is referred to below as the old concentrated infusion.

The study of the above concentrated infusions necessitated the carrying out of comparative heart perfusion experiments on problems relevant thereto. The heart perfusion method adopted has advantages over the ventricle preparations in the Roy's, Williams's, Schäfer's, and other methods, due to the fact that the whole heart of the frog is used and the whole of the intrinsic nervous mechanism of the heart is intact. The results obtained were as follows :

(A) *Digitonin, Digitalein, and Digitoxin.*—Digitonin accelerates the heart beat, diminishes the diastolic expansion of the ventricle, depresses the beat, arrests the heart in a contracted state, and is non-cumulative. Digitalein increases the amplitude of beat, slows the heart, produces a more complete systole, and is non-cumulative. In one experiment the same heart was arrested, purposely, three times, by strong solutions (1 : 1,000; 1 : 1,000; and 1 : 2,000) of the glucoside. After each arrest, quick and good recovery was obtained on reperfusing undrugged Ringer's solution. Digitoxin increases the amplitude of

beat, produces a more complete and prolonged systole, slows the heart, and is cumulative.

(B) *Infusion of Digitalis, B.P.* (examined when fresh).—The action of the B.P. infusion of digitalis on the heart consists mainly in: (1) Increased force of beat, shown by increased amplitude of beat; (2) increased work done shown by an augmented output, not only per beat but also per minute; (3) a more complete systole; (4) slowing of the rate of beat, due to a prolongation of systole and in part to a prolongation of diastole; (5) arrest of the ventricle in a contracted state. There is, in addition to these, (6) an early acceleration of beat with a diminution in diastolic expansion—digitonin effect. This is generally masked by the true digitalis action of slowing and increased amplitude. The mean result of the toxicity of the B.P. infusion of digitalis was that 24 c.c. of the 1 : 4 diluted B.P. infusion was required to arrest the heart of a frog weighing 25 grams.

(C) *Concentrated Infusion of Digitalis Prepared with 20 per cent. Alcohol* (examined when fresh).—This infusion was a clear liquid. The mean result of the toxicity of this infusion was that 18.5 c.c. of a solution one-quarter the strength of the postulated equivalent of the 1914 B.P. infusion of digitalis was required to arrest the heart of a frog weighing 25 grams. Note that 24 c.c. was required in the case of the 1 : 4 diluted B.P. infusion. This shows that after proper dilution the concentrated infusion is more toxic than its equivalent of the fresh B.P. infusion of digitalis. This fact finds explanation in the greater solubility of digitoxin in 20 per cent. alcohol than in water. Accordingly the concentrated infusion of digitalis prepared with 20 per cent. alcohol is richer in digitoxin than the B.P. infusion. This conclusion is strengthened on considering the mode of recovery of the arrested heart obtained from each of the two infusions: (*a*) From the B.P. infusion a fairly good recovery can be obtained; (*b*) from the concentrated infusion a temporary weak recovery is obtained. Since there is a qualitative as well as a quantitative difference between the B.P. infusion and its postulated equivalent of the concentrated infusion, it is not therefore justifiable to use such concentrated infusions to replace the 1914 B.P. infusion of digitalis.

(D) *Concentrated Infusion of Digitalis "A."*—This infusion was examined when four weeks old, and the preparation during that period deposited a brown sediment. This was filtered off and examined separately. Percentage w/v of dried sediment = 0.06 per cent. of the infusion. The mean result of the toxicity of the 1 : 5,000 solution of the sediment "A" was that 18 c.c. was required to arrest the heart of a frog weighing 25 grams. The tracings obtained show that this sediment possesses marked pharmacological action on the heart. It increases the amplitude of beat, produces a more complete systole, slows the heart, and leads to its arrest. Taking the solubility of digitoxin into consideration, and owing to the fact that heart-perfusion experiments on the filtrate of infusion "A," treated hereafter, show recovery of the arrested heart, one may conclude that on keeping the concentrated infusion part of the digitoxin is precipitated along with extractive matters, in the form of a sediment. This settles down and overdosage of digitoxin may occur from the last c.c. of the concentrated infusion, if such sediment is dispensed. The mean result of the toxicity of the filtered infusion "A" was that 19 c.c. of a solution one-quarter the strength of the postulated equivalent of the 1914 B.P. infusion of digitalis was required to arrest the heart of a frog weighing 24 grams. The preparation showed good tonic effect—slow beats of great amplitude—and in all the experiments late but good recovery was obtained on reperfusing undrugged Ringer through the arrested heart.

(E) *Concentrated Infusion of Digitalis "B."*—This infusion was examined when four weeks old, and the preparation during that period deposited a brown sediment. This was filtered off and examined separately. Percentage (w/v) of dried sediment = 0.07 per cent. of the infusion. Heart-perfusion experiments showed that the sediment possesses marked digitoxin-like action. Perfusion of a 1 : 10,000 solution of the sediment did not fail to give a decided pharmacological action: increased amplitude of beat with increased outflow through aortæ, a more complete systole and slower rate of beat. 23 c.c. of a 1 : 5,000 solution of the sediment "B" was required to arrest the heart of a frog weighing 23 grams. The heart-perfusion experiments on the filtered concentrated infusion "B" gave the mean result that 20.5 c.c. of a solution one-quarter the strength of the postulated equivalent of the 1914 B.P. infusion of digitalis was required to arrest the heart of a frog weighing 26 grams. The sediment filtered off is not accounted for.

The action of the filtered infusion consisted principally in a prolongation of the period of systole and slowing of the beat. As is the case with the concentrated infusion "A," the concentrated infusion "B" is more toxic than its postulated equivalent of the 1914 B.P. infusion of digitalis. On keeping the preparation, a sediment deposits. This is pharmacologically active, and possesses a digitoxin-like action. Overdosage may occur from the last c.c. of the concentrated infusion, if such sediment is dispensed.

These experiments indicate that concentrated infusions, whether made with 20 per cent. alcohol or with 0.1 per cent. chloroform water as in the B.P.C., are essentially digitoxin preparations, like the tincture, whereas the fresh B.P. infusion is essentially a digitalein preparation.

(F) *Old Concentrated Infusion of Digitalis.*—The effects of keeping digitalis preparations have been for a long time a matter of investigation, and opinion varied regarding the stability and activity of the various preparations. Doubtless in practice a twenty-five years' old concentrated infusion is not met with, and the following results are therefore only of scientific interest: The infusion was filtered. The sediment and filtrate were examined separately. Percentage (w/v) of dried sediment = .3 per cent. of the infusion. Eight heart perfusion experiments were carried out, and they show that

(*a*) The filtrate is devoid of tonic effect, and is toxic. (1) It decreases the force of beat, shown by decreased amplitude of beat. (2) It decreases the work done by the heart, shown by decreased outflow through aortæ. (3) It does not render either systole or diastole more complete. Therefore the filtrate is devoid of therapeutic value.

(*b*) The sediment is active, toxic, and possesses limited tonic effect. It behaves like digitoxin in being cumulative. 36 c.c. of a 1 : 2,500 solution of the sediment was required to arrest the heart of a frog weighing 27 grams. These experiments on the old concentrated infusion seem to indicate that all the digitalein and digitoxin present in solution had decomposed; only that part of the digitoxin which was out of solution in the sediment had apparently resisted decomposition.—From the Materia Medica Department, University, Manchester.

DISCUSSION.

Mr. FRANKLIN offered his congratulations to the President on having obtained so valuable a paper, and also paid a tribute to the author.

Mr. DEANE mentioned that the method of the tests shows the therapeutic value of digitalis, but facilities for carrying it out are not everywhere available. He instanced the preference for freshly prepared infusions.

Mr. HAMPSHIRE expressed doubts regarding infusions, as his experience, particularly in connection with hospital work, was that the tincture was preferred. The tincture provided hospital physicians the opportunity of watching the effects on the patients.

Mr. EVANS (Bath) remarked that freshly prepared infusion had, in the experience of the medical men in his neighbourhood, produced the best results.

Mr. GAMBLE said that when infusion is ordered it should be freshly prepared; concentrated infusions were not so efficient.

Mr. FOURACRE asked for information on the colour-tests for digitalis as introduced by Martindale.

Mr. HAMPSHIRE mentioned that there had been a subsequent paper on the subject.

The PRESIDENT agreed with Mr. Hampshire that the infusion is not preferable to the tincture, and it is possible that medical men do not obtain such good results, owing

to the infusions being stale. The medical Press would no doubt take note of the paper, and bring it to the notice of the medical men.

Mr. FRANKLIN moved a vote of thanks to the author of the paper, and Mr. T. MALTBY CLAQUE seconded.

Mr. EVANS (Bath) supported the vote of thanks, and coupled with it the name of Mr. Hampshire, whose reading of the papers was highly appreciated. (Applause.)

The PRESIDENT, in putting the vote of thanks, pointed out that the paper was the result of an enormous amount of work.

Before announcing the termination of the session, the PRESIDENT said that it was desired to increase the number of items in the research list. Suggestions to that end should be forwarded to the Secretaries of the Conference.

Mr. T. MALTBY CLAGUE suggested that ideas might be brought forward in that meeting.

The PRESIDENT agreed, and called for expressions of opinion.

Mr. A. J. JONES suggested that a fresh assay of galenicals prepared from the *Solanaceæ* might be undertaken, and the titrations correlated.

Mr. HAMPSHIRE reminded those present that the Secretaries were always trying hard to get fresh subjects. (Hear, hear.)

After Mr. EVANS (Bath) had again referred to animal extracts as a subject for further investigation, the sitting was formally closed.

Practice Section.

The Practice Section resumed its sitting on Wednesday morning. Owing to the absence of Mr. Hines, the discussion of the Dangerous Drugs Act Regulations (opened by Mr. J. P. Gilmour, editor of "The Pharmaceutical Journal") was taken first, Sir William Glyn-Jones presiding. An animated discussion took place, the following members contributing: Messrs. — Roberts, Norwood, J. Rutherford Hill, Harold Wyatt, James Jack, H. Antcliffe, McNab, Hirst (Scarborough), Mellor, J. B. McVitae, Gough, A. R. Keith, and J. P. Ellerington. The proceedings were private. At the request of the meeting, Sir William Glyn-Jones replied to several questions, and also gave an explanation as to the Pharmaceutical Society's action concerning the Regulations being *ultra vires*. Following the discussion a letter was read from Mr. Hines explaining he would be unable to arrive before lunch, and asking for his paper to be read. It was put to the meeting by the chairman as to whether the paper should be read or taken as read, the latter course being adopted. There was no discussion. A vote of thanks to Sir William Glyn-Jones and to Mr. Hines was proposed by Mr. H. Wyatt and seconded by Mr. — Roberts, who had proposed the discussion on the Dangerous Drugs Act Regulations.

Closing Session.

The proceedings of the closing session, which immediately followed the luncheon on Wednesday, were unusually cordial, and evidenced that the genuineness of the Yorkshire welcome was realised and appreciated. At the outset the President called upon Mr. GEORGE WHITFIELD to make a few announcements. The most interesting of these was that a palmist had been engaged to decipher the destinies of those who so desired, and that, owing to the fact that sixty-eight visitors had already expressed a desire to undergo the ordeal, a second palmist would also be in attendance.

PRESENTATION.

The PRESIDENT made the customary presentation of books from the Bell and Hills Fund to the Scarborough and North Riding Association of Pharmacists, and Mr. GEORGE WHITFIELD, in acknowledging the gift, mentioned that the selection had been made by the President of the Scarborough Junior Pharmacy Club, with the idea that the books would be largely used for the instruction of members of the Club.

ELECTION OF OFFICERS.

Mr. H. HUMPHREYS JONES proposed the election of the following officers for the ensuing year:

President, H. G. Greenish, F.I.C., F.L.S.

Vice-Presidents, J. E. Connor, F. W. Gamble, James Jack, E. T. Neathercoat, F. Ross Sergeant, Edmund White.

Hon. Treasurer, D. Lloyd Howard.

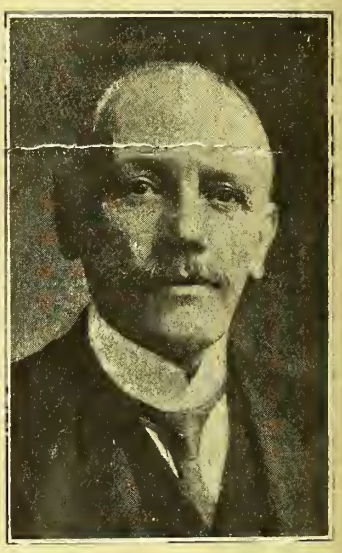
Hon. General Secretaries, R. R. Bennett, C. H. Hampshire.

Hon. Local Secretary, E. C. Carr, Nottingham.

Other Members of Executive Committee, Miss M. E. Buchanan, C. E. Corfield, F. W. Crossley-Holland, H. Deane, H. Finnemore, Sir William Glyn-Jones, J. Jinks, A. H. Melhuish, H. Skinner.

Auditors, W. F. Gulliver, F. C. J. Bird.

In the course of a rollicking speech, Mr. HUMPHREYS JONES said that he had once expressed disapproval of the method of selection of names of officers, and this was probably the reason why he had been asked to move the election of these members as officers. (Laughter.) Having gone over the list name by name, the speaker drily intimated that he was not so much afraid of being too long as he was of being too eloquent. (This oblique reference to one of the speeches at the dinner of the previous evening caused great laughter.)



PROFESSOR H. G. GREENISH, D.Sc., Ph.C., F.I.C., Hanbury Medallist. Dean of the School of Pharmacy, Pharmaceutical Society of Great Britain.

Mr. W. E. D. SHIRTLIFF, in seconding the motion, said that he was not going to be too eloquent. (Laughter.) A letter had been received from Professor Greenish (who was unable to be present) to the effect that he would do his best to advance the interests of the Conference and of pharmacy in general. (Applause.)

The resolution was carried with enthusiasm, and Mr. JAMES JACK acknowledged the election of himself and his fellow-officers.

INVITATION TO NOTTINGHAM.

Mr. E. C. CARR extended an invitation to the Conference to visit Nottingham next year. Speaking in English —(laughter)—he could not offer either the hectic joys of Liverpool or the natural beauties of Scarborough; but nothing would be left undone to ensure a successful Conference.

Mr. G. F. GODSON briefly seconded the invitation.

Mr. J. RUTHERFORD HILL, in expressing the Conference's acceptance of the invitation, remarked that he had vivid recollections of the previous Nottingham Conference, which was very enjoyable. He was afraid, indeed, of becoming too eloquent on the subject. (Laughter.)

THANKS TO LOCAL COMMITTEE.

Mr. E. WHITE proposed a vote of thanks to the local Committee, and Mr. T. MALTBY CLAGUE, who has been local secretary on two occasions, briefly seconded it, remarking that the members of the Conference had had a royal time at Scarborough.

Mr. GEORGE WHITFIELD, replying on behalf of the Committee, reminded the gathering that the invitation from Scarborough was originally given as long ago as the year 1914. It had lately been suggested that the present Conference should, on account of current events, be postponed; but those who made the suggestion did not know what Scarborough was. (Applause.)

Mr. E. R. CROSS also made a characteristic reply, and received a well-deserved ovation. His ambition, he said, was to get the Conference to Scarborough so as to show the inhabitants what a good-looking set the members were. (Laughter.) Innumerable letters had been received by the Committee—and many of them had mentioned cheesecakes. Everyone had smiled, and the Committee had provided them with fine weather.

Mrs. GEORGE WHITFIELD also acknowledged the vote of thanks in a few graceful sentences. As evidence of the keenness of local people, Mrs. Whitfield said that one lady turned up for the swimming match at 6.20 A.M. (Laughter.)

At this point a telegram was read from Mr. E. M. Holmes wishing the Conference unprecedented success. The reading was followed by a sympathetic reference by the PRESIDENT to the sudden illness of Mr. E. S. Waring, and it was agreed that a message of sympathy be sent from the Conference.

THANKS TO THE PRESIDENT.

Mr. J. E. CONNOR proposed a vote of thanks to Mr. E. Saville Peck for his services as President of the Conference. So popular was Mr. Peck that he (Mr. Connor) began to wonder if the President was not an Irishman. (Laughter and applause.)

Mr. EVANS (Bath), in seconding, said that the President symbolised the spirit of pharmacy more than anyone living, and was an inspiration to the younger members of the Conference.

The vote was carried amid great applause.

The PRESIDENT, in reply, said that the work of the last year had been entirely happy. He paid a high tribute to the assistance of the two secretaries, and also thanked the Press for helping to put before the pharmaceutical community the advantages of coming to Scarborough.

With the singing of "For he's a jolly good fellow" the proceedings of the Conference ended.

Who were There.

The following is a list of the visitors to the Conference who signed the attendance book :

Anderson, D., Sunderland
Antcliffe, H., Sheffield
Appleton, J. T., Sheffield
Armitage, W., London
Ashcroft, A. W., Liverpool
Ashton, C. S., Brighton
Atkinson, J. P., Birmingham
Atkinson, J. W., and Mrs., Birmingham
Bayles, H., London
Bayne, T., Edinburgh
Bell, W. A., Southsea
Bennett, R. R., and Mrs., London
Bennett, W. S., Hull
Birke, W. Eyre, York
Bolton, Muriel, Hull
Brown, E., Scarborough
Brown, W. R., and Mrs., Glasgow
Buckingham, H., and Mrs., Birmingham
Burbank, Miss A., Oxford
Caine, J. C., Birkenhead
Carr, E. C., Nottingham
Carrie, R. S., Liverpool
Chapman, A., Scarborough
Chapman, E. M., Scarborough
Chapman, H. E., Croydon
Chapman, J. W., Scarborough
Cherry, F., Walton-on-Thames
Clarke, R. F., and Miss, New Milton
Clague, T. M., Newcastle-on-Tyne
Clayton, G., Oxford
Cleworth, J., Manchester
Clubb, G. A., Liverpool
Clubb, W. H., Liverpool
Connor, J. E., Newry
Cooke, C. W., and Mrs., Hoylake
Crompton, Hy., Bury
Crompton, M. A., Bury
Crompton, P. I., Bury
Cross, E. R., and Mrs., Scarborough
Crossley-Holland, F. W., Soulbury
Cundall, R. P., Leeds
Darling, J. M., South Shields
Davidson, J., and Mrs., Liverpool
Dickson, D., Manchester
Dixon, W. L., London
Dott, D. B., Edinburgh
Duncan, J. G., Wallasey
Dunlop, Margaret, Newcastle-on-Tyne
Eacott, R. G., and Mrs., Teynham
Earle, P. H., Hull
Eastwood, T. E., and Mrs., Manchester
Eaton, H. O., Leeds
Ellerington, J. P., London
Evans, David A., Bath
Evans, D. H., Liverpool
Evans, John, Cambridge
Evans, Mrs. J. B., Cambridge
Evers, N., London
Eyre, Christine E., Scarborough
Eyre, W. R., and Mrs., Scarborough
Fairburn, A., Liverpool
Ferriday, A. J., and Mrs., Liverpool
Finnemore, H., London
Ford, Miss B., Kirriemuir
Foster, J., Glasgow
Fouracre, R., London
Franklin, J. H., and Miss, Manchester
Furnival, S., Sheffield
Gamble, F. W., and Mrs., London
George, R. W., London
Glyn-Jones, Sir W. S., and Lady, London
Godson, G. N., Nottingham
Goldthorpe, A., London
Gough, J. H., Leeds
Govier, R. G., Wallasey
Greenfield, Mr. and Mrs., Sheffield
Hampshire, C. H., London
Havard, H. L., London
Hawkins, P., Bridlington
Hill, A. M., Scarborough
Hill, C. A., London
Hirst, C. G., Liverpool
Hirst, H. M., and Mrs., Scarborough
Hirst, J. L., Liverpool
Howard, D. Lloyd, Ilford
Hughes, E. J., Melksham
Hughes, M. S., and Mrs., Liverpool
Humphreys, A., York
Hunt, C., Scarborough
Hunt, H. E., Scarborough
Jack, J., Arbroath
Jackson, D., Wednesbury
Jackson, S., Wednesbury
Jackson, J. G., and Mrs., Sheffield
Jones, D. P., Liverpool
Jones, H. Humphreys, Liverpool
Jones, P., and Mrs., Liverpool
Keith, A. R., and Mrs., London
Layman, F. N., London
Lean, W., Burton-on-Trent
Leeming, A. J., Guisborough
Lester, L. W., London
Lloyd, J. T., London
Longdin, C. M., Scarborough
Longdin, J. S., Scarborough
Longdin, T. W., Scarborough
Lund, F. A., Scarborough
Lund, M., Scarborough
McNab, W. G., and Mrs., Gorebridge
McVitae, A. A., Glasgow
McVitae, J. B., Glasgow
Mann, E. W., and Mrs., Birmingham
Marns, J. L., London
Marns, T., Ealing
Marshall, J. D., London
Matthew, J. E., Barnsley
Matthew, Mrs., Hoyland
Maundrell, H., and Mrs., Milton Regis
Meadley, G. H., Scarborough
Mellor, E. M., Uttoxeter
Milburn, T. E., Newcastle-on-Tyne
Milestone, R., Leeds
Milner, J., Greenwich
Milton, T. C., and Mrs., Exeter
Mumford, H. G., and Mrs., London
Newton, A., Scarborough
Newton, F. H., Hull
Newton, W. H., and Mrs., Scarborough
Noble, C. A., and Mrs., London
Norwood, J. P., and Mrs., Wath-on-Dearne
Norwood, Miss, Scarborough
Oakley, M., Wolverhampton
Paley, J., and Mrs., Liverpool
Parker, E., and Mrs., Scarborough
Parker, L., Scarborough
Parkes, G. J. R., Nottingham
Peck, E. Saville, Cambridge
Poole, J., and Mrs., Birmingham
Prior, J. S., Stamford
Purvis, J. B., Bridlington
Ransom, F., Hitchin
Rawlings, E., Leeds
Rennie, J., Rawdon
Richardson, A., Hull
Roberts, H., and Mrs., Leeds
Robinson, J. H., Liverpool
Ruff, W., Whitby
Saunders, W. H., and Mrs., Liverpool
Scholes, W. I., Eccles
Scott, A., Scarborough
Scott, A. D., Liverpool
Scott, M. G., Scarborough
Sendall, C. E. J., Liverpool
Sharples, R., Bridlington
Sheppard, W. J., Barnstaple
Shirtliff, W. E. D., and Mrs., London
Skinner, H., London
Sleggs, G. M., Liverpool
Smith, A Nutter, West Bridgford
Smith, F., Birmingham
Smith, J. L., and Mrs., Manchester
Sparrow, A. B., Southsea
Stiles, M. H., Doncaster
Stocks, A. B., and Miss A., Bradford
Stockwell, G. A., London
Symonds, A. C., Ipswich
Symonds, Violet F., Ipswich
Taylor, W. C. C., Saltburn
Thompson, Chas., Mrs., and Miss W., Birmingham
Toogood, E. J., and Mrs., London
Turnbull, J., London
Turnbull, J., Scarborough
Walker, C. F., and Mrs., Manchester
Wallbridge, J. G., and Mrs., Liverpool
Walton, W. H., Hull
Want, W. P., London
Watkinson, H. A., Farnworth
Watson, H. S., and Mrs., London
West, R. H., Southport
Wherly, C., Wallasey
White, E., and Mrs., London
Whitfield, G., and Mrs., Scarborough
Williams, H. G., Mrs., and Miss G., Sheffield
Williams, W. J., and Mrs., Liverpool
Wood, J., Wallasey
Wyatt, H., Liverpool

The Social Side.

THE pilgrimage to Scarborough—whether it may be ranked as a Pilgrimage of Grace or otherwise—was not without its entertaining features. Those members of the Conference were happiest, perhaps, who came in their own motor-cars; one London visitor is credibly reported to have made the journey in about twelve hours—and his licence is still intact. A charabanc scheme for Londoners fell through, and those from the South had perforce to travel by train, with a more or less exact reproduction of war conditions of discomfort. This journey was redeemed, however, by a break of three hours at York, enabling the pilgrims to make or renew their acquaintance with the glories of the Minster and with other features of the city. It is worth recalling that the Conference met at York just forty years ago, under the presidency of the late Richard Reynolds, F.C.S.—on which occasion numerous carboys were blown at a local glassworks for the entertainment of Conference members. One wonders what has become of them.

* * *

Mention of York recalls the fact that Mr. F. G. Hines gave up one afternoon, and Mrs. Hines another, to conducting parties of visitors round the city. Friday's party, the smaller of the two, included Mr. R. Feaver Clarke and Mr. John Cleworth, who were enthusiastic about the warmth of their reception. Mr. Cleworth, catching the missionary spirit, organised a pre-Conference excursion on the following Monday to Filey. A motor-charabanc was chartered, and twenty-eight members, under Mr. Cleworth's guidance, had an exhilarating afternoon.

* * *

The opening event of the Conference was the reception of the members by the Mayor and Mayoress at the Town Hall. In the course of the evening the members assembled in the Council-room for an informal address of welcome by the Mayor, who, in the course of a delightful speech interspersed with anecdotes, gave an outline of the history of Scarborough and suggested places of interest which, if not visited during their present stay in the town, would be well worth attention on a future occasion. Mr. E. Saville Peck, President of the Conference, expressed the thanks of the members for the reception. The function was a cheery one, and proved a successful inauguration for the Conference.

* * *

What struck one particularly at the smoking concert, held in the large drawing-room of the Grand Hotel on Wednesday evening, was the happy effect obtained by the "Fortuitous Concourse" of pharmaceutical personalities grouped around small tables. The most unlikely collocations resulted, and the effect was all to the good. Many of the members of the Conference seemed to have been attracted. Mr. E. White presided, and was supported by Mr. John D. Marshall, Dr. F. W. Crossley Holland, and as many more beacons of pharmacy as the small platform would hold. The President modestly effaced himself somewhere among the audience. There was a capital programme, consisting of songs and instrumental music by members of two professional companies (Catlins and Fol De Rols) and several amateurs. The programme was an eclectic one, ranging from Roger Quilter's settings of Shakespeare's Lyrics to topical comic songs; none of the vocalists was more justly acclaimed than Mr. Stanley Brown, who, in songs by Quilter and Stanford, added to a sound production temperamental gifts of a high order. Each of the artists, however, obtained a generous share of applause. To the concert succeeded a dance, which was equally successful as a social function. A small but efficient orchestra commenced operations just before 10.30, and the floor was soon filled with couples, most, but not all of them, young, entering with entire zest into the festive spirit of the occasion.

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The dinner, held in the ballroom of the Grand Hotel, was an excellent one. Neither the President of the Pharmaceutical Society nor the chairman of the Retail Pharmacists' Union was able to be present, but with those exceptions pharmacy was comprehensively represented. Supporting the President of the Conference at the top table were the Mayor of Scarborough, the Vice-President of the Pharmaceutical Society (Mr. F. P. Sargeant), the secretary of the Society (Sir William Glyn-Jones), Messrs. H. Antcliffe, A. R. Keith, and Herbert Skinner (members of the Society's Council), Mr. C. A. Hill, Mr. D. Lloyd Howard, Mr. F. W. Gamble, Mr. C. A. Noble, and others; and among those at the spur tables we noticed strong contingents from London, Liverpool, and Scotland, whose names are duly recorded in "Who was There." It was a merry gathering, more appreciative, perhaps, of the musical entertainment than of the speeches. The Staelens orchestra played during the dinner; the vocalists were Miss Gladys Berry and Mr. Arthur Laurence (of the "Scarborough Follies"); and Dr. Hardwicke amused the company with well-delivered recitations in a Yorkshire dialect. Sir William Glyn-Jones opened the toast list with "The Mayor and Corporation of Scarborough." After some chaffing references to the selection of a chemist member of the corporation for a post on the water subcommittee, the speech grew very serious: one thought of the famous dagger that Burke threw on the floor of the House of Commons as Sir William unfolded a poster issued on the day of the Scarborough bombardment. His reference to the late Sir Thomas Whittaker, brother of the present Mayor, was better judged, and evoked a feeling response from Alderman Whittaker when he rose to reply. The Mayor paid full and obviously sincere tribute to Scarborough chemists, past and present, and voiced the sentiments of all present in regretting the absence of the veteran Mr. John Whitfield from the dinner. The next toast, that of "The Pharmaceutical Society of Great Britain," was entrusted to Mr. F. W. Gamble, who justly said that we were looking for somewhat of a reversion to the old condition of affairs in the Society. There was evidence—for instance, in the history of the Conference—that good work can be done by the Society on the scientific side. Mr. F. P. Sargeant briefly replied. The remaining toast, "The British Pharmaceutical Conference," was proposed by Mr. James Jack and responded to by the President, who was accorded a well-deserved ovation. It was pleasant to find his tact and *bonhomie* in the conduct of the Conference proceedings so spontaneously recognised. By this time the sword of Damocles, in the shape of a lighting edict, descended, and the visitors reluctantly separated.

* * *

The first item on the programme for Wednesday was a novel one—the swimming match. This took place in the Bathing Pool at 7.30 A.M. Subsequent *contes* have revealed the fact that more than one person had to be turned out of bed in order to be present. In spite of this reluctance, the company, including the competitors, numbered nearly sixty. The winners were: *Ladies*—(1) Miss Parker (Scarborough); (2) Mrs. Atkinson (Birmingham). *Gentlemen*—(1) Mr. Wood (Seacombe); (2) Mr. J. P. Atkinson (Birmingham); (3) Mr. T. Marns (Ealing). The habitat of the winning gentleman was responsible for several indifferent puns.

* * *

One result of last year's Conference was that there were more visitors present at Scarborough from Liverpool and the district than probably from any other centre. We understand that the number of Liverpool pharmacists participating in the 1920 Conference was relatively small—which is of interest as indicating the growth of the Conference habit.

* * *

While breaking their journey at York, Messrs. John H. Robinson and W. J. Williams, two of the Liverpool members, called on Mr. Burgin, Mansion House Pharmacy, who acted as a Good Samaritan in the matter of a temporary faintness on the part of one of his visitors. The kindness is gratefully remembered.

Insurance Act Dispensing.

A Record of matters concerning Chemists' interests in the National Health Insurance Acts

Reports from Local Centres.

ENGLAND.

Kent.—The Insurance Committee met at Maidstone on June 8, Mr. C. Igglesden presiding. The Panel Committee reported that from January 1 to June 30 the cost of medicines was 16,905*l.* (9,018*l.* for ingredients and 7,887*l.* for dispensing-fees); the number of prescriptions was 371,989, with an average value of 10.9*d.* (5.8*d.* ingredient price and 5.1*d.* dispensing-fee). As the prescription values varied between 17.8*d.* and 7.8*d.* some 16,000 prescriptions were investigated, but in no case could the prescriptions be condemned. The general use of a well-designed formulary, it was suggested, would effect a great saving in drug costs. Such a formulary, universal for the kingdom, should be fairly easy to compile. For this Committee it is recommended that a circular be prepared showing the general average for the county and the individual doctor's average to stimulate care in prescribing. The Insurance Committee approved the report, and resolved to inform the Ministry of Health that the Committee had no recommendation to put forward in the matter of surcharge of doctors, and that the report is intended to cover 1919 as well as the six months ended June 30, 1920. The Committee also resolved that steps be taken for the analysis of medicines dispensed by Insurance chemists. Several changes and additions to the panel were notified.

Smethwick.—At a meeting of the Insurance Committee, held on June 7, the Medical Benefit Sub-Committee recommended that an application from the Pharmaceutical Committee for the allotment of 25*l.* to meet administrative expenses for the current year be agreed to. The sums paid will be deducted from chemists' accounts. The Finance and General Purposes Sub-Committee in their cash statement for the period January 1 to May 23 reported expenditure from the 1920 Drug Fund at 395*l.* 9*s.* 9*d.* and 1921 Drug Fund 1,042*l.* 12*s.* 8*d.* In the accounts payments to chemists (March balances, April advances) amounted to 276*l.* 5*s.* 9*d.*

North Riding.—At a meeting of the North Riding (Yorks) Insurance Committee, on June 11, the Medical Benefits Sub-Committee approved of the reports of the Excessive Prescribing Sub-Committee, which showed that out of nine practitioners reported for excessive prescribing four were surcharged from 8*l.* to 35*l.* Dr. Baigent criticised the manner in which panel doctors, who exceeded the limit of prescription fees, were reported for surcharge. There was need for some authorised representative of the medical profession to deal with these cases. The chairman said he did not think Dr. Baigent understood the position, and explained how the decision to report for surcharge was arrived at. Dr. Candler-Hope said that only those doctors were reported who had exceeded the average for the preceding quarter *plus* 35 per cent. After considerable discussion it was recommended by the Sub-Committee that panel doctors in the area of Thornaby, South Bank, Grangetown, and Loftus should, subject to the approval of the Ministry of Health, store dressings for wounds instead of having to prescribe for dressings.

The Old Story.—On May 31 a Presidential mandate was promulgated by the President of the Republic of China reiterating the former injunctions upon the provincial authorities and people to prosecute the task of opium suppression to the utmost degree. Condign punishment will be visited upon those who shall be found indifferent in this respect. In view of the reports of the recrudescence of poppy cultivation in a few of the provinces, a special High Commissioner (says "Reuter") will be appointed at an early date to tour the provinces and ascertain the true state of affairs.

Recovery of Essential Oils.

At the Lavender Fair, which was held recently at Digne, M. Gattefossé read an interesting paper dealing with the medicinal properties of oil of lavender, and also on the recovery of essential oils contained in the aqueous distillate. He mentioned that about 10 per cent. of the oil contained in the flowers is lost in the ordinary process of distillation, but that it is possible to recover this amount. The method proposed is by no means new, and has, in fact, been in use since very remote times. At the present moment this process is being worked in the modern installation of the Société de Lavande Française, and it is also followed by the Bulgarian distillers of otto a rose, as described by M. Gattefossé. The Bulgarian distillers charge the retort with 10 kilos. of rose flowers, and add about 50 litres of water; about 10 litres of water are distilled, from which only a small amount of rose oil is collected; this is the solid green essence. Distillation is then repeated, in all four times, and the resulting 40 litres of distillate are again submitted to redistillation, yielding from 10 to 15 litres of distillate, from which the yellow essence is obtained. By this procedure it is possible to obtain 1 kilo. of oil from 4,000 kilos. of flowers, whereas if redistillation is not adopted about 10,000 kilos. of flowers are required to obtain the same amount of oil. This method of redistillation makes it possible to increase the yield of essential oil from anything between 5 to as much as 50 per cent., according to the essential oil, since it must not be forgotten that the aqueous distillate may contain from 0.15 to 0.30 gram of essential oil per litre. The apparatus designed for the recovery of essential oils from the aqueous distillate, and constructed according to his plans by M. Fabre, of Vaison, consists of a condenser which is filled with rectified petroleum ether to about one-third of its height. The water from the distilling apparatus is made to enter in three fine streams. After passing through the petroleum ether it falls to the bottom of the container, where it is removed by means of a syphon and made to pass into a second container, similar to the first, thus undergoing a second extraction. This process may be repeated as many times as may be desired, in order to extract the whole of the essential oil borne by the water. The petroleum ether is submitted to distillation when it contains about 50 per cent. of its weight of essential oil, in order to recover the pure oil. Naturally the essential oil obtained by this means is not equal to that obtained in the first place, nevertheless its value amounts to about two-thirds of that of the first portion recovered by direct means. Needless to say, this operation must be carried out in a part of the building where there is no open fire, unless a non-inflammable solvent is used for the purpose of extraction. As an example of the practical value of this method, M. Gattefossé adduced its use in the case of oil of lavender. Since 150 to 200 litres of water are distilled to obtain 1,000 grams of oil of lavender this entails a loss averaging from 25 to 60 grams of oil for every 1,000 grams obtained. By adopting his method of recovery of the oil in the aqueous distillate, the distilleries which have fitted the apparatus designed by him have succeeded in increasing their output by from 5 to 10 per cent., and in the case of other essential oils the increase is even greater.

Benzyl Succinate is recommended as preferable to benzyl benzoate for internal administration as an antispasmodic. It is a white crystalline substance with a slightly aromatic taste, but with practically no odour. Benzyl succinate is administered in the form of powder, tablet, or capsule, and does not cause nausea.

Canada's Chemical Trade.—The total imports of chemicals and allied products into Canada for the fiscal year ended March 31, 1921, amounted to $36,334,612, of which the United States sent $26,787,896 and the United Kingdom $6,037,185. The exports of chemicals and allied products from Canada during the same period amounted to $19,344,424, of which the United States took $11,465,207 and the United Kingdom $3,225,947.

Trade Report.

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling and the like. Qualities of chemicals, drugs, oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42 Cannon Street, E.C. 4, June 16.

THE markets at home continue to be dominated by the situation in the coal industry and the general labour conditions, so that the volume of business passing continues light. Exporters, however, report a better inquiry, and this helps to give a more confident tone to business generally. Among the changes of the week is a sharp reduction in British glycerin, which will freeze out foreign competition. Quinine sulphate is scarce and dearer in second-hands, with the price approximating more closely to that of makers. Menthol is the turn easier. Japanese slab camphor continues in demand, mostly for export, and prices are rising. English castor oil is 5*l.* per ton higher, but French is lower in one direction. Cod-liver-oil makers are asking higher prices in several quarters, but interest is lacking. Shellac and turpentine are lower. Agar-agar has a tendency to rise. Coriander seed has been in better demand, cumin is steady, hemp firm, and canary seed slow. Aconite is scarce and serpentary root cheaper. Mercury is a shade weaker.

Higher	Firmer	Easier	Lower
Agar-agar Albumen, egg Castor oil (Eng.) Cocoa butter Quinine sulphate (dealers')	Camphor (Jp. ref. slabs) Cod-liver oil Glucose Wood oil Steadier Amidopyrin Caffeine	Benzonaphthol Betanaphthol Cassia oil Citronella oil Heliotropine Lemongrass oil Menthol Mercury Methyl salicylate Orange oil (Sic.) Pepper, white Phenacetin Potash caustic Soda hypo. Sodium nitrate	Acetanilide Caraway oil Castor oil (Fr.) Glycerin (makers') Guaiacol carb. Potash carbonate Serpentary Shellac Tartaric acid Thymol Turpentine

Cablegrams.

NEW YORK, June 14.—Business is fair. Mercurials are lower; calomel is now 82c.; white precipitate powder, $1.11; and corrosive sublimate powder, 66c. per lb. Jalap has been reduced to 20c., buckthorn bark to 8c., and belladonna leaves to 17c. per lb.

BERGEN, June 15.—The total catch of Norwegian cod since the opening of the season now amounts to 38,400,000 (last week, 38,100,000), against 36,600,000 at the corresponding period of last year, and the yield of steam-refined oil is 56,621 hectolitres (last week, 56,215 hectolitres), against 54,739 hectolitres at the corresponding period of 1920. Finest new Lofoten medicinal oil is offered at from 90*s.* to 100*s.* per barrel c.i.f. U.K. ports.

Crude Drugs, etc.

ACONITE ROOT is very scarce on the spot, the value of *Napellus* being about 130*s.* per cwt., and Japanese, if obtainable, about 95*s.*

AGAR-AGAR has been selling more freely of late, and spot supplies of good No. 1 Kobe are now much smaller at 2*s.* 1*d.* per lb.

ALOES.—The exports from the Union of South Africa during February 1921 amounted to 15,978 lb., valued at 200*l.*, against 28,024 lb., valued at 420*l.*, in February 1920. During the two months ended February 28 the exports were 15,978 lb., against 100,593 lb. (1,635*l.*) for the corresponding period of 1920.

ANTIMONY is slow with crude nominally 16*l.* 10*s.* to 17*l.* 10*s.* c.i.f., and 18*l.* on the spot. Only small lots of English refined are disposed of at late rates, and refiners' operations are in narrow compass. The Continental demand for foreign regulus has almost dried up, but the price is still 24*l.* 10*s.* for Chinese on the spot.

BISMUTH.—The demand for metal is moderate and the price is retained at 7*s.* 6*d.* per lb. Fair quantities have been coming forward from the Far East.

BUCHU.—Subsequent to the auctions small sales of part stalky ovals were made at the bids offered in sale.

The exports from the Union of South Africa during February 1921 amounted to 12,452 lb. (2,168*l.*), against 18,824 lb. (7,784*l.*) in February 1920. During the two months ended February 28 the exports were 12,452 lb. (2,168*l.*), against 18,824 lb. (7,784*l.*), there having been no exports in January 1921 or 1920.

CAMPHOR (REFINED).—The export movement noted last week has continued, the sales including Japanese 2½-lb. slabs on the spot at 3*s.* 9*d.* to 3*s.* 10*d.*, and Chinese up to 3*s.* 8½*d.* to 3*s.* 9*d.* To arrive, the sales include Chinese afloat at 3*s.* 8*d.*, May-June shipment at 3*s.* 4½*d.*, and June-August at 3*s.* 1½*d.* c.i.f., also Japanese for June-August shipment at 3*s.* 4*d.* c.i.f.; ¼-oz. tablets are scarce on the spot, up to 5*s.* 6*d.* per lb. having been paid, and sales of June-August shipment have been made at 4*s.* 3*d.* c.i.f.

CASTOR OIL.—Finest medicinal French, of water-white quality, is obtainable in 3-cwt. barrels, ex wharf London, at lower prices in one direction as follows: Pharmaceutical, 59*l.* per ton; firsts at 52*l.*; and seconds, 46*l.* English is 5*l.* dearer at 64*l.* for pharmaceutical, 59*l.* for firsts, and 54*l.* for seconds, packages included, ex works Hull.

COCOA BUTTER is 1*d.* per lb. higher at 2*s.* per lb. for prime English in not less than 1-ton lots.

COD-LIVER OIL.—Our Bergen correspondent writes on June 7 that "the cod-liver oil market is a little firmer, although the sales are small. Lately, new non-freezing steam-refined oil sold up to 100*s.* per barrel c.i.f. London, and sellers now ask 105*s.* Probably the advance is due to the momentary scarcity of oil on the market, as the supplies were held up owing to the seamen's strike, which is now over. As regards the Finmarken fishery, last week the catch was satisfactory, being more than 1,000,000 cod, with a yield of about 1,800 hectolitres of oil." The total output of all the Norwegian cod-fisheries compared with that of the previous years is as follows:

	Catch of cod (millions)	Steam-refined cod-liver oil (hectol.)	Livers for crude oil (hectol.)
To June 4, 1921 ...	38.100	56.215	12.656
" " 5, 1920 ...	35.300	53.001	6.140
" " 7, 1919 ...	28.600	34.503	4.904
" " 8, 1918 ...	23.200	19.263	13.390
" " 9, 1917 ...	24.800	34.132	4.875
" " 3, 1916 ...	47.400	55.769	5.076

In London there is, as usual at this period of the year, only a small demand, with agents quoting about 90*s.* to 100*s.* per barrel c.i.f. for finest new non-freezing medicinal Lofoten oil.

EGG PRODUCTS are quiet, with sellers of prime Chinese liquid yolk at 130*s.* per cwt.; for June-July shipment there are sellers at 80*s.* per cwt. c.i.f. Dried yolk is 5*d.* and sprayed whole egg 1*s.*; Native dried whole is 6*d.*—all spot. Prime hen albumen has been sold up to 2*s.* 10*d.* per lb. on the spot, and 2*s.* 7*d.* per lb. c.i.f. is the value for June-July shipment.

ERGOT.—Good sound Spanish on the spot is still held for 6*s.* per lb. An arrival of 28 bags has taken place from Spain.

FARINA continues slow of sale, the spot price of No. 1 Japanese being nominal, and for June-July shipment 18*s.* 6*d.* c.i.f. is quoted. Dutch on the spot is 19*s.*, and June-July shipment 17*s.* 6*d.* c.i.f.

GLUCOSE is firmer, guaranteed water-white for June delivery offering at 32*s.* per cwt. duty paid, landed terms.

GLYCERIN.—The British refiners have reduced the price of chemically pure, s.g. 1.260, by 20*s.* per cwt. to 120*s.* in 5-ton lots in 10-cwt. drums, and to 135*s.* per cwt. in 56-lb. tins in cases.

LIME JUICE has been selling a little more freely of late; fine raw Jamaica is quoted 2*s.* 6*d.* to 2*s.* 9*d.* and 2*s.* 3*d.* per gallon for ordinary.

LINSEED OIL.—The best of the recent demand has been seen, and there has been a slow retrograde movement both in oil and the cost of import of seed, but opinion

is conflicting in regard to future developments. It remains to be seen how the situation will become affected by the anticipated resumption of work by the coal-miners next week. Possibly a better home-trade demand may ensue for the oil, and the demand for the seed on home account is apt to develop again. The River Plate situation, however, is becoming again normal after the strike in the Argentine. The London spot price in barrels is 39*l*.

MAGNESIUM.—There is a little demand, home makers asking about 6*s*. to 6*s*. 3*d*., but Continental is offering at 5*s*. 9*d*. per lb. c.i.f. Magnesium powder has sellers on Continental account at about 2*s*. 3*d*. per lb. c.i.f. home ports, based on 99.8 per cent., and this rate might be shaded a little.

MENTHOL is a trifle easier, Kobayashi-Suzuki offering at 19*s*. to 19*s*. 6*d*. per lb. on the spot, and sellers of June-July shipment at 16*s*. 6*d*. c.i.f.

MERCURY.—While the leading importing firm have retained their limit at 11*l*. 10*s*. per bottle, the slackness of demand is causing sellers of Italian to accept 11*l*., and it is rumoured that business has been even done at a little below this. An arrival of 5,000 bottles took place early this month. The imports for May were small at 105 bottles, making a total for the five months of 10,896 bottles, compared with 20,019 bottles and 28,827 bottles respectively for the same period in 1920 and 1913. The re-exports for May were 1,217 bottles, making for the five months a total of 4,003 bottles, against 12,492 bottles and 14,869 bottles for the corresponding period in 1920 and 1913 respectively.

OPIUM.—Business in the London market remains almost at a standstill, and prices of Turkey druggists' opium are nominally from 12*s*. to 13*s*. per lb. as to test.

SMYRNA, May 27.—Since our last circular of April 29, the sales of opium on our market amount to 48 cases of 169 lb., in all 3,112 lb., and the piaster price paid is about 15 per cent. over and above what was paid during April—viz., 700 to 790 piasters per lb. as to quality. Besides this, the sterling exchange having dropped further—viz. to 500-10 piasters per pound sterling—the shilling value of the drug is now 10*s*. to 11*s*. 6*d*. per lb., compared with 8*s*. to 9*s*. 6*d*. thirty to forty days ago. There is also another factor to be taken into consideration, and that is there are no arrivals of any importance from the growing districts. During the past six weeks only 13 baskets of 169 lb. have come down. The reason is that our bankers, owing to the monetary crisis, will not advance any money on the drug. The present prices, too, although they have advanced a little lately, are still about 400 piasters below what the article actually cost the native holder a year or two ago. The exchange to-day is 510 piasters per pound sterling for cheque and $0.78 for one Turkish pound of 100 piasters. The arrivals are 1,330 cases, against 1,665 at same date last year, and our stock is now about 1,129 cases.

SHELLAC has declined by 5*s*. to 10*s*. per cwt. on the spot, usual standard TN orange quality offering at from 375*s*. to 380*s*., fine lemon is unchanged at 430*s*., fine second orange is 410*s*., pure button 390*s*., and AC free garnet 300*s*. The delivery market is also lower, the sales including August at 285*s*. down to 265*s*.; shipment market is nominal.

TURPENTINE is still feeling the poorness of the home demand under a most unsettled state of the market. Forward interest has remained practically at a standstill, although it is a well-known fact that business can be done at a substantial discount on the terms current for spot and near delivery, which have been secured this week at down to 78*s*. spot and July-August. The London stock of American spirit has fallen very low to about 8,000 barrels, while a little over 1,000 barrels of the French product are available. The market in America is very uncertain. Our imports for May were only 334 barrels, making a total of 2,255 barrels for the five months, compared with 6,150 barrels and 5,678 barrels respectively for the same period in 1920 and 1913.

WAX, JAPANESE, is steady at 90*s*. per cwt. on the spot.

WOOD OIL continues scarce, Hankow in barrels offering at 95*s*. per cwt. on the spot, and at 65*s*. c.i.f. to arrive.

Seeds and Spices.

ANISE is unchanged at 75*s*. per cwt. for Russian, 73*s*. 6*d*. for Cyprus, and 77*s*. 6*d*. for Spanish.

CANARY SEED is slow of sale but nominally unchanged at 80*s*. for ordinary and 95*s*. for good Morocco.

CARAWAY SEED is quiet at 27*s*. 6*d*. to 30*s*. 6*d*. per cwt. for fair to fine Dutch on the spot.

CLOVES.—Zanzibar remain quiet, with spot sellers at 9*d*. per lb., and for June-July shipment 8*d*. c.i.f. is quoted. The stock is light compared with the last two years, being 4,957 bales, against 20,353 bales and 18,075 bales in 1920 and 1919 respectively.

CORIANDER SEED.—Sound Morocco is in better demand, and good sales have been made at 18*s*. 6*d*. per cwt. Wormy sells slowly at 8*s*. 6*d*. to 9*s*. 6*d*., according to quality.

CUMIN SEED is steady at 27*s*. 6*d*. to 30*s*. per cwt. for fair to good Morocco. Some old crop, dark colour, has been sold at 22*s*. 6*d*. per cwt.

FENUGREEK SEED is very slow of sale at 8*s*. 9*d*. to 9*s*. 6*d*. per cwt. for dull to good Morocco.

GINGER.—The lower prices of Cochin have recently stimulated the demand, fair quantities having been disposed of, principally for grinding purposes. Wormy rough washed Cochin is 30*s*. to 35*s*., and new 40*s*. African is 25*s*. to 26*s*., and Japanese 37*s*. 6*d*. per cwt. on the spot.

HEMP SEED is firm at 24*s*. to 25*s*. per cwt. on the spot, but parcels due in a few days can be bought at 20*s*., and June-August shipment at 15*s*. 6*d*. c.i.f. terms.

MACE is dull, fair Singapore offering at from 1*s*. to 1*s*. 2*d*., ordinary 10*d*. to 11*d*., and pickings 7½*d*. to 8½*d*. per lb.

MUSTARD SEED is quoted 22*s*. 6*d*. for English yellow old crop, and 24*s*. to 26*s*. 6*d*. for new.

NUTMEGS are quiet, Singapore 110's offering at 8*d*., 80's at 1*s*. 0½*d*., and 65's at 1*s*. 4½*d*. per lb.

PEPPER.—*Black* Singapore is quiet, with spot sales at 3⅞*d*. to 4*d*. per lb., and afloat at 3 11/16*d*.; June-August and July-September shipments have sellers at 3 15/16*d*. to 4*d*. Lampong is 4½*d*., Tellicherry 4½*d*., and Aleppy 4¼*d*. *White* Muntok is steady at 8 15/16*d*. to 9*d*. paid, and Singapore is 8½*d*., both spot. Muntok for June-August and July-September shipment has been sold at 8½*d*. to 8⅝*d*. c.i.f.

Essential Oils.

BUYING continues on a limited scale, and for certain articles any important demand would, it is stated, be reflected in firmer prices, owing to the small stocks. Caraway oil has been reduced. Cassia, citronella, lemon-grass, and orange oils are easier. Aromatic and synthetic chemicals are not in much demand, and heliotropine and methyl salicylate have moved slightly in buyers' favour.

ANISE (STAR) is unchanged on the spot, with sellers of "Red Ship" at from 1*s*. 11*d*. to 2*s*. To come forward quotations are made at from 2*s*. to 2*s*. 2½*d*. c.i.f.

BERGAMOT is steadier this week at from 21*s*. 6*d*. to 22*s*. 6*d*. per lb. for spot 37 to 39 l.a. To come forward quotations are made at from 20*s*. to 22*s*. c.i.f.

BOIS DE ROSE (FEMELLE) is quiet on the spot and unchanged at 15*s*. per lb.

BOIS DE SIAM.—The manufacturers are making considerable reductions in price in order to interest users of cedarwood oil, to which, they maintain, bois de Siam oil is superior.

CARAWAY.—Dutch is lower on the spot at 5*s*. 6*d*. per lb. for rectified and 5*s*. for crude.

CASSIA is easier on the spot at from 3*s*. 9*d*. to 3*s*. 10½*d*. per lb. for 80 to 85 c.a. To come forward the price is unchanged at 3*s*. 4*d*. c.i.f.

CEDARWOOD is quiet, with quotations at from 2*s*. 11*d*. to 3*s*. per lb. for spot.

CINNAMON.—Ceylon leaf is unchanged at from 4½*d*. to 5*d*. per oz. on the spot.

CITRONELLA.—Business has been done at 1*s*. 3*d*. per lb., and in some directions 1*s*. 3*d*. has been refused, 1*s*. 3½*d*. being asked. There are still spot sellers at 1*s*. 3*d*., however. For Java 2*s*. 8*d*. is the quotation, and with a bid probably less would be accepted.

CLOVE.—English distilled is easy and unchanged on the spot at from 5*s*. to 5*s*. 6*d*. per lb., according to seller.

GERANIUM.—There is very little inquiry for either variety, and Bourbon is nominal at from 17*s*. to 18*s*. per lb. Algerian is quoted variously at from 24*s*. to 25*s*.

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Lemon on the spot is quiet at from 3*s.* to 3*s.* 3*d.* per lb. for spot, according to seller, and to come forward prices are still irregular at from 2*s.* 10*d.* to 3*s.* 9*d.* c.i.f. There is not much interest shown in forward quotations at present, as spot stocks are more than sufficient for consumers' needs.

Lemongrass.—Cochin is cheaper on the spot, with sellers at 3½*d.* per oz.

Lime.—Distilled is quiet on spot, with sellers at 3*s.* 1½*d.* per lb. Hand-pressed is unchanged at 22*s.* 6*d.*

Mint.—Japanese dementholised Kobayashi-Suzuki is unchanged, with spot sellers at 4*s.* 3*d.* per lb.

Orange.—Sicilian sweet is easier at from 11*s.* 6*d.* to 12*s.* per lb., and to come forward 10*s.* to 12*s.* c.i.f. are about the current quotations.

Peppermint.—The New York rate of exchange is responsible for firmer c.i.f. quotations. Bids of 12*s.* 3*d.* have been refused in some directions. For spot 13*s.* 6*d.* per lb. is quoted for good brands of "Wayne County" oil in tins.

Patchouli is unchanged at from 50*s.* to 53*s.* per lb., according to quantity.

Petitgrain.—Paraguayan on the spot is quiet at 13*s.* per lb.

Aromatic and Synthetic Chemicals.

Amyl Salicylate in round lots is obtainable at 4*s.* 6*d.* per lb., and from 5*s.* 6*d.* upwards is quoted for smaller quantities. Bromstyrol is unchanged on the spot, with sellers at from 12*s.* to 16*s.* per lb. Aubepine.—Straw-colour is obtainable at 12*s.* to 13*s.* per lb., and water-white at from 16*s.* to 17*s.* Benzaldehyde.—English makers are reported to have suspended manufacture, owing to slackness of trade. As it can only be imported under licence, stocks are said to be small. To come forward, 4*s.* 6*d.* c.i.f. is quoted for f.f.c. Citral is irregularly quoted on the spot, and from 15*s.* to 16*s.* is an average quotation, with prices on both sides of these figures. Heliotropine is easier at from 10*s.* to 12*s.* Methyl Anthranilate is nominal at 10*s.* per lb. Methyl Salicylate on the spot is easier for 5-cwt. drums at 2*s.* 2*d.* per lb., with smaller quantities proportionately higher. Terpineol is unchanged on spot at from 1*s.* 9*d.* to 2*s.*

Pharmaceutical Chemicals.

Although a few products are being offered at slightly cheaper figures, there is a better tone to the market generally, and slightly more business is being done. The future of a number of products depends on the fate of the Safeguarding of Industries Bill, which the Government have finally determined to put through quickly, so as to give as much time as possible for its deliberation in the House of Lords, with the hope that it will be finally passed by the Upper Chamber before the session ends in mid-August. Among the products which have eased in value are acetanilide, betanaphthol, benzonaphthol, hexamine, thymol, tartaric acid, paraformaldehyde, and phenolphthalein. Quinine sulphate is dearer in second-hands. Caffeine and amidopyrin are steadier.

Acetanilide is showing up very weak on a dull market, and quotations are now down to 1*s.* 4*d.* to 1*s.* 7*d.* per lb.

Aloin is now offering at 4*s.* 11*d.* to 5*s.* per lb.; demand continues poor.

Amidopyrin is steadier at about 21*s.* 6*d.* per lb.; market continues quiet.

Aspirin is still being inquired for, with prices fairly well maintained at 3*s.* 3*d.* to 3*s.* 6*d.* per lb. for best quality.

Atropine Sulphate continues to be steadily quoted at 23*s.* per oz.

Barbitone is now very steady at 15*s.* per lb.; some offers are slightly above this figure.

Benzoic Acid is steady and unchanged at 2*s.* 6*d.* per lb.; to arrive 2*s.* 3*d.* c.i.f. is quoted; market is still quiet.

Benzonaphthol is quiet, with values at about 8*s.* to 9*s.* per lb.

Betanaphthol.—Resublimed is again a little easier, and quotations as low as 3*s.* 6*d.* to 3*s.* 9*d.* are recorded.

Bromides continue to be freely offered, but the demand is below the average; values continue to be maintained with difficulty. Potassium, crystals and granular, is about 10*d.* per lb.; ammonium about 1*s.* 2*d.*, and sodium about 1*s.* 1*d.*

Caffeine, after last week's considerable fall, is steadier at 19*s.* 6*d.* to 20*s.* per lb. for pure; market is not active.

Calcium Lactate continues quiet and unsteady, but the general quotations average 2*s.* 3*d.* per lb., cheaper parcels having apparently been mostly cleared.

Chloral Hydrate.—To arrive in quantity German make is quoted at 3*s.* per lb. c.i.f.

Citric Acid.—Italian makers are quoting 3*s.* per lb. c.i.f., and are not keen sellers even at that. They maintain that the price of citrate of lime will not be reduced. Dealers' prices are very steady at from 2*s.* 5*d.* to 2*s.* 5½*d.* per lb., less 5 per cent.; demand is limited and the high price restricts consumption.

Cream of Tartar remains unaltered, makers quoting from 135*s.* to 140*s.* per cwt. for 99 to 100 per cent. powder.

Creosote, B.P., is steadier this week at 4*s.* 9*d.* per lb.; market is still dull.

Creosote Carbonate, which experienced a fall last week, is now steady at 15*s.* per lb. on a quiet market.

Guaiacol Carbonate is easier at about 15*s.* to 15*s.* 6*d.* per lb. as to quantity; it is somewhat on the scarce side and has shown slightly more demand.

Hexamine is perhaps a shade easier again, with some quotations as low as 5*s.* per lb.; market is still dull and weak.

Hydroquinone is unsteady, with quotations varying from as low as 5*s.* up to 5*s.* 6*d.* per lb.

Methyl Sulphonal continues quiet but steady at 21*s.*

Milk-sugar is easy, with importers quoting 132*s.* 6*d.* per cwt. for single cases, and slightly less for quantity.

Paraformaldehyde is easier with offers at 3*s.* per lb. in kegs, and up to 3*s.* 6*d.* quoted.

Paraldehyde continues almost lifeless, with values from 2*s.* to 2*s.* 3*d.* per lb.

Phenacetin continues very quiet, and values are showing up again a little easier at about 7*s.* per lb., and slightly less for quantity; to arrive 6*s.* 6*d.* c.i.f. is quoted.

Phenazone remains quiet, with values well maintained at about 8*s.* 3*d.* per lb.

Phenolphthalein is slow of sale on a quiet market, the average price being 4*s.* 6*d.* per lb.

Potassium Permanganate, B.P., is showing a little activity, with values at about 1*s.* 7*d.* to 1*s.* 9*d.* per lb.

Potassium Sulphoguaiacolate is generally being quoted at 8*s.* 6*d.* to 8*s.* 9*d.* per lb., but there is not much demand.

Pyrogallic Acid.—Crystals are unchanged at 7*s.* 6*d.* to 7*s.* 9*d.* per lb.

Quinine Sulphate is now very scarce in second-hands, and sellers are difficult to find; small sales have been made at from 3*s.* 9*d.* to 3*s.* 10*d.*, but 4*s.* appears to be the nominal price at the close.

Resorcin is quoted at from 8*s.* 6*d.* to 9*s.* per lb. as to quantity.

Salicylates.—Salicylic acid, B.P., continues fairly steady at 1*s.* 4*d.* to 1*s.* 6*d.* per lb.; sodium salicylate is a little easier at 2*s.* 3*d.* to 2*s.* 7*d.*; there is, however, but small demand.

Salol continues unchanged at 3*s.* 3*d.* to 3*s.* 6*d.* per lb. on a quiet market.

Santonin.—As from June 9, the usual importers and original consignees have reopened the sale of santonin at prices ranging from 60*l.* to 65*l.* per kilo., according to quantity. Only regular customers and makers of santonin tablets are being supplied. The consignees are in a position to offer larger quantities for delivery during July-August. They also hold a large stock of genuine worm-seed, which they offer at 8*s.* per kilo. ex warehouse.

Silver Nitrate.—The price for crystals on June 15 was based on a metal price of 35*d.* per oz., as follows: In quantities of 25 oz., 2*s.* 3*d.* per oz.; 50 oz., 2*s.* 2½*d.*; 100 oz., 2*s.* 2*d.*; 250 oz., 2*s.* 1½*d.*; 500 oz., 2*s.* 1*d.* per oz.

Sodium Benzoate is well maintained at 2*s.* 6*d.* per lb.

Sodium Diethylbarbiturate, B.P., continues steady on a quiet market at 24*s.* 6*d.* per lb.

Tannic Acid.—Leviss is unchanged at 4*s.* 6*d.* per lb.

Tartaric Acid.—One of the Italian makers quotes

1*s.* 6*d.* per lb. c.i.f. net for prompt shipment. Their terms are, of course, "cash against bill of lading," so that in many instances four weeks may elapse before the actual delivery of the goods. Dealers quote 1*s.* 7½*d.* to 1*s.* 8*d.* per lb., with an occasional weak seller at less.

TERPIN HYDRATE continues to be quoted at 3*s.* to 3*s.* 6*d.* per lb. as to quantity.

THYMOL continues almost lifeless, and offers are being made as low as 21*s.* 6*d.* to 22*s.* per lb.

Heavy Chemicals.

Wednesday, June 15.

So far as the home trade is concerned there is, of course, no improvement in the amount of business being done in the heavy chemical market, but during the past week quite a fair inquiry for export has been received, and a little more actual business is reported; the market is not quite so stagnant as it has recently been. Taken all round, values are quoted at about the same level.

ACETIC ACID continues neglected, there being but small demand for the stocks offering, and quotations are showing up a shade lower this week at 44*l.* to 45*l.* for 80 per cent. technical and 54*l.* to 55*l.* per ton for 98 per cent. commercial.

ARSENIC.—Demand is slow, and holders of white Cornish powder ask 42*l.* 10*s.* delivered at the mines, or 45*l.* per ton delivered London or Liverpool. Grecian is obtainable at 45*l.* c.i.f. U.K.

BLEACHING POWDER is unchanged at the recently reduced figure of 18*l.* per ton for 35 to 37 per cent. material in hardwood casks; market is still very dull.

COPPER SULPHATE.—Last month's exports amounted to 1,761 tons, against 1,420 tons for May last year, the aggregate for the five months being 22,205 tons, compared with 15,459 tons and 65,374 tons respectively for the same period in 1920 and 1913. Export business is quiet, which is chiefly attributed to Italian and German competition on comparatively low terms, especially due to the abnormal rates of exchange. Some large makers continue to quote 32*l.* f.o.b. Liverpool for casks, less 5 per cent., but purchases can be made at a little less for export, while the nearest home-trade price is called 31*l.* for casks and 1*l.* per ton less in bags.

EPSOM SALT continues neglected, and values are easy at 8*l.* 10*s.* per ton for commercial quality in single bags and 10*l.* 10*s.* for pharmaceutical quality.

FORMALDEHYDE continues stagnant, with values nominal at about 95*l.* to 100*l.* per ton.

LEAD ACETATE is lifeless, with values nominal at 50*l.* per ton for brown broken and 56*l.* for white crystals.

LEAD PRODUCTS.—There is indication of business reviving somewhat, but the general demand is still disappointing, especially for export. The home manufacturer is up against stiff foreign competition, especially in white lead. Market conditions are unsettled, this being partly due to the continuous sharp ups and downs in the price of pig lead, which has dropped once more considerably this week. There has been no further alteration in this market for either lead oxides or white lead.

LIME ACETATE (80 per cent. grey American) is quite neglected, with values nominal at 15*l.* per ton.

LITHOPONE is being inquired for in small lots and quoted at 30*l.* for Continental red seal and 33*l.* per ton, casks free, for light resisting; values are very steady.

OXALIC ACID continues quiet, with values easy; general quotations are 9½*d.* to 10*d.*, with a few at 9*d.* per lb.

POTASH CAUSTIC is showing up again easier this week; the demand is exceedingly poor. Spot quotations are now being made at 40*l.* to 42*l.* per ton, with limited lots offering; makers' are quoting 33*l.* per ton, which shows a reduction of 3*l.*

POTASSIUM BICHROMATE still quoted by makers at 10½*d.* per lb.; spot lots are offering at about 10*d.* per lb. Very little business is being done.

POTASSIUM CARBONATE has been considerably reduced by makers, and is now quoted at 35*l.* per ton for 90 to 92 per cent.; spot prices are above this figure. The demand is poor.

POTASSIUM CHLORATE is still quoted by makers at the recently reduced figure of 5*d.* per lb.; spot parcels are also offering round about this price.

POTASSIUM PERMANGANATE.—Commercial quality is still quoted by makers at 1*s.* 9*d.* per lb.; imported material is moving in limited quantities from 1*s.* 6*d.* per lb. upwards.

POTASSIUM PRUSSIATE.—Red and yellow are in very poor demand; makers quote 2*s.* 3*d.* and 1*s.* 3*d.* per lb. respectively, a few spot lots offering at slightly lower figures.

POTASSIUM SULPHATE continues to be quoted by makers at 20*l.* per ton ex ship for 90 per cent. material; demand is not good.

SALTCAKE continues stagnant; still no demand, and values are nominal.

SODA ASH (58 per cent. light alkali) is only being asked for very occasionally, and values are easy at 9*l.* per ton f.o.b.; makers' price for home trade only continues unchanged at 8*l.* 10*s.* per ton in bags.

SODA CRYSTALS are quoted by makers at the old figure of 7*l.* per ton in bags, carriage paid; a few spot lots are also offering ex stores at this figure.

SODIUM CAUSTIC.—Makers' prices are 26*l.* 15*s.* per ton for 76 to 77 per cent. in large drums f.o.r. and 24*l.* 10*s.* for 70 to 72 per cent. for home trade only; spot parcels are a little easier at 22*l.* 10*s.* per ton for 70 to 72 per cent., and about 26*l.* for 76 to 77 per cent., in drums f.o.b.; American 76 per cent. material quoted at competitive figures c.i.f. Continental ports and United Kingdom; only very small business is being done.

SODIUM CHLORATE is quoted by makers and dealers at 4¼*d.* per lb., but the demand is far from good.

SODIUM CYANIDE is quoted at the unchanged figure of 11*d.* to 11½*d.* per lb. for 100 per cent. basis f.o.b.; market is dull.

SODIUM HYPOSULPHITE.—Commercial quality continues to be quoted at 20*l.* per ton, but there is practically no demand; photographic, pea crystals in 1-cwt. bags are still in limited demand, with the prices slightly easier this week at 22*l.* 10*s.* to 26*l.* per ton; makers' prices are unchanged at 24*l.* for photographic and 17*l.* for commercial per ton.

SODIUM NITRATE is quoted by makers this week at the slightly reduced figure of 18*l.* 10*s.* per ton for 96 per cent. refined material f.o.r. Liverpool; market is still quiet.

SODIUM NITRITE is unchanged by makers at 42*l.* per ton for 100 per cent. material; market continues very quiet indeed.

SODIUM PRUSSIATE continues to be offered by makers at 7*d.* per lb.; spot lots are also quoted at this figure, but the demand is not good.

SODIUM SULPHIDE is offered by makers at 28*l.* 10*s.* per ton for 60 to 65 per cent. for concentrated in casks; spot lots of 60 to 62 per cent. solid in drums are quoted at 25*l.* per ton f.o.b., but demand is negligible.

SODIUM SULPHITE.—Anhydrous is lifeless, with values nominal at 28*l.* per ton; crystals are quoted by makers at 12*l.* 10*s.* per ton for home trade only.

TIN CRYSTALS are quoted by makers at the unchanged figure of 1*s.* 5*d.* per lb.

ZINC CHLORIDE (solution 1.02° Tw.) is quoted by makers at 22*l.* 10*s.* per ton.

ZINC OXIDES continue quiet, with values firm and unchanged at: White seal, 47*l.* 10*s.*; green seal, 45*l.*; red seal, 40*l.*; and blue seal, 32*l.* per ton.

GRASSE FLOWER CROPS.—One of the most important houses in Grasse has been instrumental in keeping the average price paid for orange flowers almost on a level with last year's figures, notwithstanding the short crop. The highest price paid was 12.75 fr. per kilo., and as much as 25 fr. was being asked. Last year's highest figure was 10 fr. With regard to the rose crop, the efforts of the firm in question have been even more successful, this year's price being 4.50 fr., which is a considerable reduction compared to 8 fr. in 1920. It is interesting to note that this firm was charged, wrongly, as it was afterwards apparent, with unduly inflating the prices for flowers last year.

"That Free Stall."

SIR,—Had Miss Buchanan prefaced her letter (*C. & D.*, June 11, p. 70) with the following quotations from the Council-meeting in January last, there would have been no need for me to attempt to justify my paragraph: "Miss Buchanan expressed her indebtedness to the organisers of the Exhibition for their kindness in allotting a stall free of cost"; or Mr. Parry: "Every member of Council would warmly approve of the action of the 'British and Colonial Pharmacist' in providing a stall free of charge." If I erred, I erred in attaching the ordinary meaning to words used by responsible councillors.

THE WRITER OF THE PARAGRAPH (19/9).

Pulv. Seidlitz Conc.

SIR,—All *C. & D.* readers who served in the R.A.M.C. during the war must have used hundredweights of the excellent powder which bore the above name. I have recently made several efforts to obtain it, but all attempts to combine the two "papers" of seidlitz into a single powder have failed hopelessly. I consulted an experienced craftsman, but the best compound that he produced only preserved its effervescent properties for a few days. Perhaps some of your other readers have been more fortunate.

Yours sincerely,

R. J. BLACKHAM.

Shop Hours.

SIR,—When "Xrayser II." hopes that our hours will not be further shortened he does not, I think, voice the general opinion on the subject. I do not know what "Xrayser II.'s" present hours are, but in the suburban locality in which I work the hours generally run from 8.30 A.M. to 8 P.M., and 9 P.M. on Saturdays. This, of course, does not mean that one is free on the stroke of eight, as there are nearly always several Insurance or other scripts in at the last moment which have to be finished off, so that 8.30 is more nearly the time, making approximately a twelve-hour day, which is just half as much again as the trade union working day. In addition to this there is the Sunday duty, now fortunately only a couple of hours in the evening; but it comes round every second or third Sunday, according to the number of assistants employed, and breaks what might otherwise be a free day. There is not, therefore, an overwhelming amount of spare time for relaxation, as understood by other workers in the community, the time at which we leave in the evening allowing us to arrive at the tennis-courts or the cricket-field at the hour when play is nearly over, even in these days of daylight saving, and it is just too late for the commencement of concerts or lectures. I am well aware that there is a vast improvement on the old life, from which I have suffered in the past probably as much as "Xrayser II.," finishing at 10 P.M. on week-days and any time on Saturday night, or more often Sunday morning, no half-holidays, and Sunday duty was solitary confinement all day. At the other extreme are, of course, the Government official, who works from 9 to 4 and 9 to 12 on Saturday, and the school teacher, who knocks off at 4 P.M. on Friday till 9 A.M. on Monday; the happy medium would probably be found for most of us by instituting a working day from 9 to 6 for shops and all alike. I can hear the grumble, "Oh, but when can I do my shopping?" and my reply is another question, "When does the shop assistant do his or her shopping?" Unfortunately, the whole scheme falls to the ground without legal compulsion, because there are always some individuals who will not be amenable to reason. In this area there are certainly two, if not more, pharmacists who would go back to the ten o'clock closing hour to-morrow if the Act were withdrawn, and when the eight o'clock hour was instituted they practically ignored it until the appointment of a local inspector led to warnings that there would be trouble if they did not obey the law. If such a reasonable working day as 9 to 6 were instituted, and it was claimed that a late service should be provided on public grounds, then the assistants carrying on such service should be paid at an increased rate for overtime, just the same as any other public servant, and the public should pay a late fee to cover it.

Yours faithfully,

OVERTIME (11/6).

Indian Druggists and the Rate of Exchange.

SIR,—I am not concerned with Mr. Nag's remarks (*C. & D.*, June 4, p. 71) against the Indian banks, although all English exporters have very clearly defined opinions as to the manner in which the English banks have declined to negotiate documents at their full value during the last six or nine months. I venture to think Mr. Nag and his Association have completely overlooked the fact that by their action in not taking up their bills for chemicals and drugs ordered by them they have dealt a serious blow to the relations between exporters and the Indian druggists from which it will probably take a generation to recover. All business must be based upon a certain amount of good faith between buyer and seller, and if one deceives the other, even unwillingly, the result is a serious set-back to those good relations. Most of the British export houses have had the unpleasant experience of wholesale repudiation of their bills upon customers in India with whom they have done business for years without a single hitch. As far as one can gather, the excuse of the Indian indentor is that when they ordered these goods the rupee was worth 2*s.* 6*d.* or well over 2*s.*, and when the invoices and documents arrived the rupee had fallen to 1*s.* 6*d.* By waiting several months, during which they no doubt hoped the rupee would increase in value, they now find it only worth about 1*s.* 4*d.* Why should the Indian trader be the only one, as far as I know, to repudiate his contracts in a wholesale manner? All the English importers from America have during the last year or so had to face a depreciated pound sterling, but whatever the value was they have accepted their obligations and have met their drafts. I understand that Mr. Nag has offered an inducement to British manufacturers to join his Association by promising to do their best to dispose of the goods sold to the members, but for which they are unwilling to pay. Surely the net of the fowler is spread in vain.

Yours faithfully,

A BRITISH EXPORTER (15/6).

Miscellaneous Inquiries.

N. D. D. (3/6).—RHEUMATIC TABLETS.—These consist of acetyl salicylic acid (100) with starch (15), the figures in parentheses being the proportions of the ingredients.

R. R. K. (7/6).—CLEANING SILVERWARE.—Tarnish is readily removed from silver by (1) prepared chalk moistened with solution of ammonia, (2) strong solution of sodium hyposulphite, followed by chalk, and (3) weak solution of potassium cyanide.

Retrospect of Fifty Years Ago.

Reprinted from "The Chemist and Druggist," June 15, 1871.

The British Pharmaceutical Conference.

The annual meeting of the British Pharmaceutical Conference will, this year, commence on Tuesday, the 1st of August, at 10 A.M., in the Craigie Hall, St. Andrew's Square, Edinburgh. . . . The British Pharmaceutical Conference is, next to THE CHEMIST AND DRUGGIST, the most catholic institution in connection with pharmacy. It has done more to encourage scientific investigation and an intelligent interest in pharmaceutical matters than, perhaps, any other agency. And it has added much, as we have often remarked before, to the spread of a more generous and respectful social acquaintance between the members of the trade. Correspondents write from time to time asking us to advocate the formation of a Chemists' Club. Here is one, or rather here is the basis of one, and we are not at all sure but that from it might grow a club with a local habitation. The difficulty is that such an establishment would almost certainly cultivate a spirit of exclusiveness, the one tendency which, above all others, the British Pharmaceutical Conference aims to avoid.

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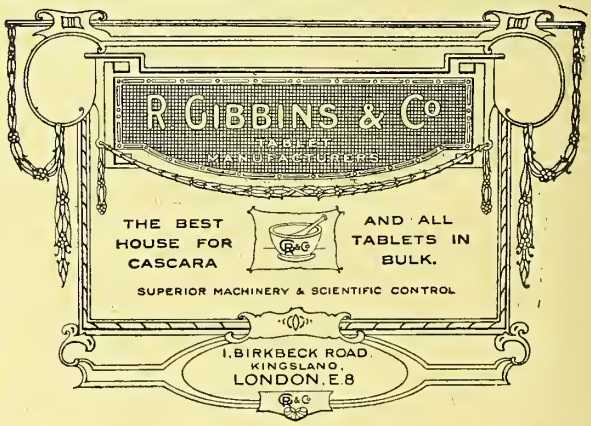

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Revised prices to Retailers come into force June 17, 1921.
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,, ,,	32 ,, ,,	5/-	40/- ,,
,, ,,	½-gallon jar	7/6	5/6 each
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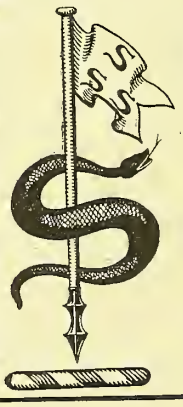

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is a non-inflammable Liquid Dry Cleaner. It removes the most obstinate stain from clothes, table-linen, etc., without leaving any "water-mark." Sold in 4-oz. bottles at **1/3** each (**10/6** per dozen) showing a profit on turnover of **30%**. Particulars of quantity prices on application.

This offer is available only until July 16th, so we look forward to receiving your order at the earliest moment.

THE COOPER LABORATORY

(Chemicals and By-Products, Ltd.)

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BEATSON'S BOTTLES

Beatson's Bottles were first made in 1751

GLASSWARE FOR CHEMISTS.

BEATSON, CLARK & CO., Ltd.
GLASSWORKS,
ROTHERHAM.

LIQUID PARAFFIN B.P. 1914

EXCLUSIVELY REFINED FROM

RUSSIAN CRUDES.

ALL GRAVITIES. HIGHEST VISCOSITIES.

"JASMINE BRAND" **ADEPS LANÆ B.P.** Superfine Anhydr. and Hydrous.

LANOLINE.

"JASMINE BRAND" **PETROLEUM JELLIES B.P.**

White and Yellow Tasteless and Odourless.
Natural Filtered and Opaque.

"JASMINE BRAND" **WHITE OILS** Chem. Pure, Water White, Tasteless, Odourless.

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All Our Products are Guaranteed of Finest Qualities and Our Prices are Competitive.

THE PURE RUSSIAN LIQUID PARAFFIN CO., LIMITED.

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Actual Refiners and Manufacturers at their Works near London.

Francis F. Fox & Co.: Bristol

LINSEED OIL. TURPENTINE.
FINE OLIVE OILS.
LIQUID PARAFFIN. CASTOR OIL.
CHEMICALS. DRYSALTERY.
PETROLEUM JELLY.
CRUSHED LINSEED.

PRICES ON APPLICATION.

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"FOX BRISTOL."

TELEPHONE—
19 BRISTOL.

WE BUY

Sprinklers
Glycerine
Tragacanth
White Flint Bottles
White Bloomless Mineral Oil

Any Quantity. Send Samples.
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STANIFORTH PLACE, HULL.

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DISINFECTANTS
OF ALL KINDS.

Disinfecting Fluid,
Co-efficient Disinfecting Fluids,
Carbolic Acid (LIQUID and CRYSTALS),
Cresylic Acid,
Naphthaline,
Lysol, and
Disinfecting Powders.

The "KILLGERM" Co. Ltd.
CLECKHEATON.

Telegrams: "Disinfect Cleckheaton."
Telephone: 237 Cleckheaton.
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LINSEED OILS

RAW, BOILED, REFINED.

Castor Oils, *Medicinal, Lubricating.*

Colza Oils, *Best Pure, Prepared.*

Linseed Oils,

Best Raw, Double Boiled. Refined.

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Best Pure Spirits.

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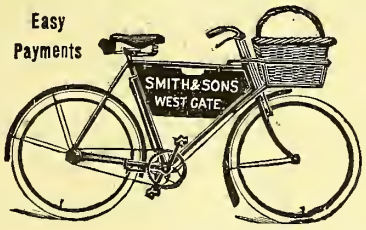
The finest investment you can have, for the advertisement is worth the cost of the bicycle.

Easy Payments



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TWO STRONG BRAKES

WHEELS 26 × 1¾

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From GARDINER & CO.

We supply protective overalls in any colour or style required. They are made by experienced hands for all branches of the Chemical trade.

KHAKI DRILL -	12/6, 16/11, 21/6, 24/6
WHITE DRILL	14/6, 17/6
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Sizes 34, 36, 38, 40, 42 and 44 inches over waistcoat.
SPECIAL QUOTATIONS FOR QUANTITIES.

GARDINER & CO. (THE SCOTCH HOUSE) LTD.
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THE FINEST BRITISH LANOLINE PRODUCED
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THE PHARMACEUTICAL LANOLINE CO.

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The Gold Stream Diverted

IN pre-war days Continental spas annually absorbed hundreds of thousands of pounds of British money. But the War-wind blew, and the spas withered. Their glory is departed, and the stream of British cash is diverted; a part of it finding its way into the tills of British chemists. No British physician ever thinks of sending patients to foreign spas now, he prescribes British treatment. To-day thousands of doctors are prescribing Osmos, the British Aperient Water, with splendid results, and the national demand for this constantly advertised remedy represents ready-made business that chemists can attract by showing Osmos in the window and on the counter.

OSMOS
The Great British Aperient Water

Trade Terms:
22/- per doz. bottles, carriage paid.

Retail Price:
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OSMOS, Crown Wharf, Hayes, Middlesex.

(1)

Dr Hale's
VIN-SANGUIS
WINE FOR THE BLOOD

Fountain of Health

If you have a Wine License we will pay the fee.
If not, get one, we will pay license.
Send for any

You agree to display "Vin Sanguis" always.
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You always keep stock
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PROPRIETORS OF
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Vinum Xericum

BUTTS.	HOGSHEADS.	QR. CASKS.
108 galls.	54 galls.	27 galls.

Grade A. STRENGTH 16·5°–17° Abs. Alc.
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The new vitalising food proved to contain the three principal vitamines

YOUR WHOLESALERS CAN SUPPLY YOU

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IMPORTANT.

Natural Mineral Waters.

WE beg to inform the Trade that we are now regularly receiving consignments of Natural Mineral Waters from the Continent and other parts of the World.

We are thus in a position to execute orders for the leading well-known Natural Mineral Waters, as under :—

VICHY-CÉLESTINS AND THE OTHER STATE SPRINGS

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Any Natural Mineral Water not in stock, if procurable, can be imported to special order during the Season.

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(2)

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Maltine

REGD. TRADE MARK

with **PARAFFIN**

In Powder Form. The Best Corrective for Constipation.

Price 3/- & 5/6 less 25%

THE MALTINE MANUFACTURING CO., Ltd., ACTON VALE, LONDON, W.

Season—1921.

COD LIVER OIL

GUARANTEED GENUINE.

Manufacturers:

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LARGEST MANUFACTURERS OF COD LIVER OIL IN NORWAY.

Wholesale only. In 25-gallon tin-lined barrels.

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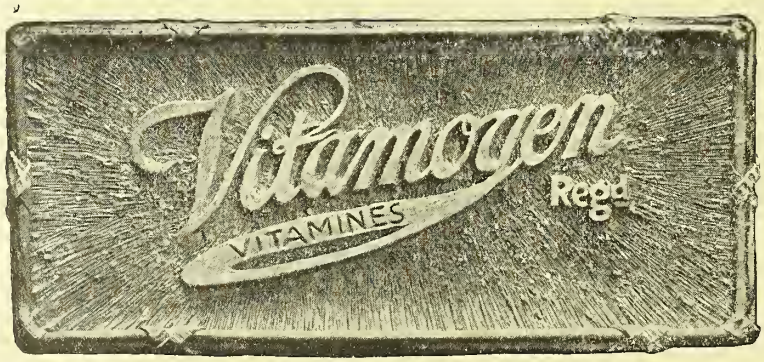

VITAMOGEN contains the essential *Vitamines* in an active and concentrated form. VITAMOGEN is in itself a food of the highest potency, rationally concentrated according to approved scientific methods. It is rich in organic, i.e. assimilable Phosphorus, and the proportion of nutritive constituents is well balanced to meet the physiological needs of the organism.

VITAMOGEN stands alone as a means of supplying the Vitamines—an entirely new food element.

VITAMOGEN is packed in two sizes, 2/9 and 5/9, obtainable from all the principal wholesale houses.

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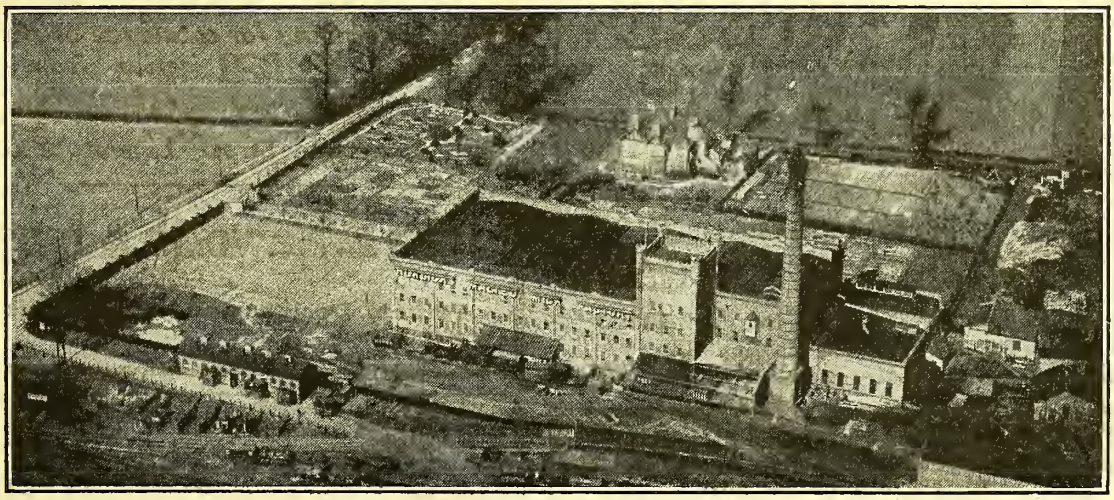
Vitamogen LTD.

HORLICK'S MALTED MILK

THE ORIGINAL



An aerial view of the works at Slough, Buckingham, England, where all the

HORLICK'S MALTED MILK

Supplied in Great Britain is Produced.

PRICE PROTECTED - - 2/-, 3/6, 15/-

Attractive Advertising Material Free and Carriage Paid on application to

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SLOUGH, BUCKS, ENGLAND.

(Sir James Horlick, Bart., President.)

Alcohol for Industrial Purposes
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The Industrial Spirit Supply Company, Limited.
Agents: HONEYWILL BROS., 79 MARK LANE, LONDON, E.C.3.

FREDK. FINK & CO.,
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SPECIALITIES.—Gums Arabic and Tragacanth as imported or finely powdered.

PRECIPITATED CHALK
Lightest and Whitest, also Purest Dense
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ADJUSTABLE. INTERCHANGEABLE PARTS.
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Always in Great Demand.
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FOR COLOURING GREY HAIR
This popular article is largely advertised and stocked by all Wholesale Houses. Trial Size 8d., per post 11d. 1/4 size, per post 1/8; 2/6 size, per post 2/11; 3/9 size, per post 4/6; 8d. size, 6/- doz.; 1/4 size 12/- doz.; 2/6 size 24/- doz.; 3/9 size, 36/- doz.
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CACHETS "FINOT"
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With inscriptions in any desired tint; also Plain or Embossed.
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These Cachets are especially adapted for Headache, Neuralgia and other powders.
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In 17 Sizes to fit the various types of Cachet Machines.

ALL CHEMISTS SHOULD STOCK ABDINE
THE GOLD MEDAL FRUIT DRINK.
Quick Seller. Big Profits. Over 40 years' Reputation.
"Abdine" is the most popular Health Drink, superior to all Mineral Waters. The Original and only genuine Fruit Drink.
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and by return will come along a sample and full particulars of the proved proposition that means more business *daily* for the enterprising chemist. It never fails!
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Write for quotations
A wide, long band, sticky on both sides.
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BY SELLING

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(No Sugar Required).

THE **BUSY SEASON** is here, so place your order **NOW** for G.O. Lemonade to avoid loss of sales. A 2d. packet makes a quart, a 3½d. makes two quarts, and a 6½d. makes one gallon of splendid Lemonade by simply dissolving in cold water.

***BONUS PARCELS*—**
may be varied to customers' requirements so long as they total £3 or £6 in value.
Less 2½% for Cash with Order.

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The two following suggested BONUS PARCELS comprise all the sizes and show you a clear Profit on Turnover of over 33⅓ per cent.

£3 PARCEL—	1 gross 2d.	=	17	6
	6 dozen 3½d.	=	15	0
	2⅔ ,, 6½d.	=	11	9
	1½ ,, 1/3	=	15	9
			£3	0	0

BONUS—1 doz. 6½d., in payment for display.

£6 PARCEL—	1 gross 2d.	=	17	6
	2 ,, 3½d.	=	3	0	0
	6 dozen 6½d.	=	1	7	3
	1½ ,, 1/3	=	15	9
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BONUS—2½ doz. 6½d., in payment for display. Sent Carriage Paid direct for cash with order, or through your Wholesale house.

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(J. Milner, M.P.S., Proprietor)

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Fine Leaf Gelatine, Pure Calf.

"Albion" Brand (In 1-lb. Packets, 112 × 1-lb. to Case)

Made in England.

FINE CRYSTAL GELATINES.
PURE SKIN GELATINES.
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EDWARD MACBEAN & Co., Ltd.

Manufacturers of Oil-proofed and Rubber-proofed Cloths of every description.

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TOMPKINS' CORNER

TOP VALUE IN

Bathing Caps

CHECK WATERPROOF, CIRCULAR, 8/- doz.

ALL-RUBBER Fancy designs from 10/6 doz.

ALL-RUBBER Helmet Shape STOCKINETTE BANDS from 20/- doz.

SPONGE BAGS from 4/6 doz.

WATER WINGS from 15/- doz.

A postcard will bring you samples on approval.

SPECIAL VALUE—Oiled SILK Sponge Bags.

Size	1	2	3	4	5	6
	6/-	7/-	8/6	10/-	12/-	15/- per dozen.

SURGICAL RUBBER GOODS of all kinds.

JAMES TOMPKINS, LTD.

THE RUBBER HOUSE,

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Established 44 years. Phone: City 7640.

Southalls' Towels

for Ladies

	Trade gross	Retail dozen
Size 0	8/6	11d.
,, 1	11/6	1/3
,, 2	14/7	1/7
,, 3	18/6	2/-
,, 4	20/9	2/3

COMPRESSED—

	Trade gross	Retail each
A	13/11	1½d.
B	18/6	2d.
C	23/1	2½d.
D	27/8	3d.

N.B. Southalls are pleased to announce that they are able to revert to the **PRE-WAR** practice of using **WHITE WOOL** back and front for all towels except Size O. The towels are consequently better in appearance, more effective, and much cleaner. The Size O will also be made with white back at the earliest opportunity if the costs permit.

Trade Mark.

Write for booklet, "Comfort and Hygiene," free from Lady Manager, 17 Bull Street, Birmingham.

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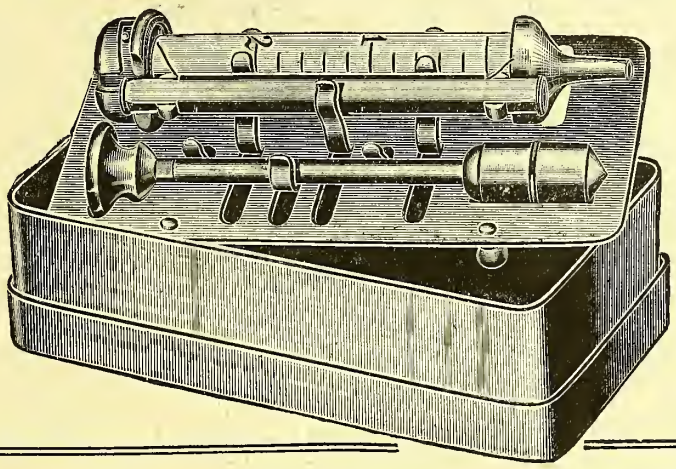
BRITISH MADE BRITISH MADE

These Syringes are made throughout in our factory in Birmingham

Guaranteed absolutely accurate and of high-class finish and quality.



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AND AT BIRMINGHAM.

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RIGOLLOT'S MUSTARD LEAVES

FOR PLASTERS.
THE ORIGINAL.
THE **ONLY** GENUINE.

7d., 1/- & 1/7 Packets
5/3, 9/-, 14/3 per Doz.

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THE ORIGINAL

Boracic Socks

Fixed Selling Price, 6d. per pair.
Cost, 4/- per dozen.
Six dozen lots, 46/- per gross.

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For Sample Pair (state size) send Postcard to—

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ESTABLISHED 1848 E. FORSHAW & SON LTD TEL 123
SOAP AND CHEMICAL PLANT MAKERS.
WARRINGTON, ENGLAND.

SOAP & CHEMICAL BOILING PANS
STEAM JACKETTED PANS
MIXING PANS
EVAPORATORS, STILLS &
AND EVERY DESCRIPTION OF
SOAP AND CHEMICAL PLANT.

No 1 Plant for Experimental purposes

No 2 Plant Output 100 to 200 pounds per day

No 3 Plant Output 300 to 400 pounds per day

No 5 Plant Output 2000 to 2500 pounds per day.

Established 1848
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SOAP AND CHEMICAL PLANT MAKERS.
WARRINGTON, ENGLAND.
MILLED TOILET SOAP PLANT.
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No 4 Plant Output 600 to 1000 pounds per day.

No 8 large combined triple granite roller mill with triple rotary cutter. Granite rollers 72 inches long, 20 inches diameter.

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No 8 mammoth plodder with reduction gear for Motor drive. Output 3 tons per day.

No 5 Grant bronze lined plodder. Output 2 tons per day.

Toilet Bar Cutting Machine.

Rotary Cutter or Shredder

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THE MIRROR NAIL POLISHING STONE

Actual Size.

FACILE PRINCEPS

In
QUALITY
STYLE
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PRICE

5/- per doz. (3 doz. at 4/9)

British Made Throughout

This leading Manicure Line is Exclusively made by

SOLPORT BROTHERS, LTD.,
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And is obtainable from all Wholesale Chemists and Hairdressers' Sundriesmen.

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ACTUAL PRODUCERS
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EMBOSSED
SHOW CARDS
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FOR THE
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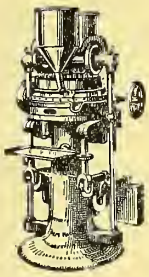
Trades.
WALSALL LITHOGRAPHIC Co.
VICARAGE PLACE WALSALL

TIME DETERMINES THE PROFITS.



To make even a fair margin of profit the job must be done quickly, and with a saving of time over methods used a few years ago.

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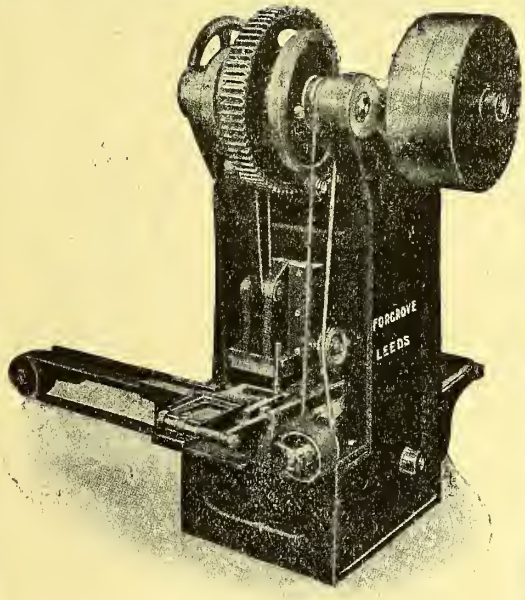


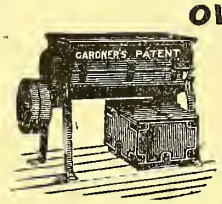
SOAP STAMPING MACHINES.

Output, 50 pieces per minute.

THE FORGROVE MACHINERY CO., LTD.
DEWSBURY ROAD, LEEDS.

GARDNER'S PATENT

"RAPID" SIFTERS & MIXERS



OVER 6,000 working in almost every Trade where POWDERS are Sifted and Mixed and Lumps Reduced, all being done at one operation and without loss by dust.

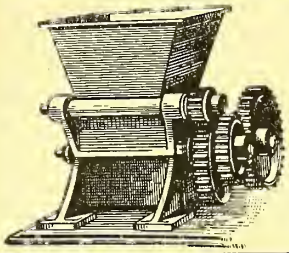
FOR HAND OR POWER.

CATALOGUES FREE.

WM. GARDNER & SONS, Engineers, GLOUCESTER

THE **GRIMSLEY** MIXER FOR PILL MASSES

And complete installation for manufacture of Pills, etc.



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EARLY DELIVERY.

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Special Offers to Wholesale Buyers.

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FLINT KALIS, to hold about 1-oz. **9/6**, 4-oz. **15/-**, 12-oz. **25/-**, 24-oz. **48/-** per gross. (Also in other sizes.)

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FLINT MEXICANS, to hold about 1-oz. **10/-**, 2-oz. **12/-** per gross.

FLINT VIALS (in all sizes) to hold about ¼-oz. **6/-**, ½-oz. **7/-**, 1-oz. **8/-**, 2-oz. **10/-** per gross.

FLINT CANNONS, to hold about ½-oz. **16/-**, 1-oz. **18/6** per gross.

TINTED MEDICALS, to hold about 4-oz. **12/-** per gross, net.

(All subject to being unsold.)

These goods are offered for immediate delivery, and afford an opportunity to replenish your stock at low prices. Write or call at once.

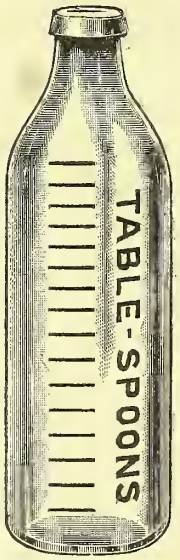
Wholesale ONLY. **JULES LANG & SON** No RETAIL Firms supplied.

Charlton Works · Charlton Place · Islington · LONDON, N.1.

Telephones: North 2770-2 (3 lines). Telegrams: "ASSORTED, PHONE, LONDON."
Codes: A B C, 5th Edition. Scott's 10th Edition (1906). Bentley's Complete Phrase Code.

The **W** *Brand of Hand-Moulded*

BOTTLES AND MEDICAL GLASSWARE



STERILIZING MILK BOTTLE.

Free from dangerous "frosted glass."

Finest Quality Dispensing Bottles, Poisons, Cheltenhams, Chest Squares, Shop Rounds, and Bottles for Proprietary articles, in various colours. Feeding Bottles and Sterilizing Milk Bottles in Heat - Resistant Glass.

DISPENSING BOTTLE.

Wholesale only—

WOOD BROS. GLASS CO. LIMITED,
(Established 1828) BARNSLEY, ENGLAND.

Collapsible Tubes

SERVICE.
QUALITY.
PRICE.

FOR THE BEST GO TO BETTS'.

Best Service. Best Quality. Best Price.

NOW! is the Wise Buyers' Opportunity.

Betts & Co. Ld
1, Wharf Rd., City Rd.
London, N. 1.
Established 1857.

"Corruganza" SEAMLESS OINTMENT BOXES

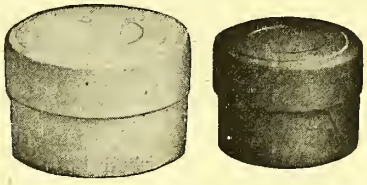
Have replaced the old "Willow" boxes—Greaseproof—the bottoms cannot fall out.

GERMAN "WILLOW" BOXES are again being offered at lower prices, but these boxes will not hold Powders, nor, in warm weather, Ointments.

THEY ARE DEAR AT ANY PRICE.

Stick to the ONE-PIECE principle

"Corruganza" SEAMLESS PILL BOXES.



THE phenomenal success of the "Corruganza" Seamless Ointment Boxes has induced us to offer a series of Pill Boxes made on the same **One-Piece** principle. Stocked in usual sizes.
They cost a little more than the Ring and Disc style, but THEY HOLD THE GOODS, and do not fall to pieces in handling or in the pocket.

Wholesale or Export only from

HUGH STEVENSON & SONS,
LIMITED,
Summerstown Works, London, S.W. 17
And at Manchester, Birmingham, Leith, Perth & Glasgow.

Kindly mention this Journal when replying to the advertisement.

THE ORIGINAL

HUNT'S BOTTLE CAPS

To fit all sizes of Bottles

To fit all sizes of Bottles

PAPER CASES for Capsules and the Lining of Tin Pastille Boxes. Samples on application.

From all Wholesale Houses or direct from the Sole Makers,

MANSELL, HUNT, CATTY & CO. LTD., LONDON, N.W.

Can your Corks stand this?

PUSHED in, twisted, pulled out, rammed in again, forced home against the counter—time after time—without snapping! Can your Corks stand this? If they can't, get into touch with the firm that supplies Corks that *can.*

PYRAMID CORKS

TRADE MARK

Represent the most your money can buy—anywhere. Try them and see. A businesslike offer. If you're not satisfied, ask for your money back!

N. W. Mitchell & Sons, Ltd.

"The Cork Firm."

Limehouse, London, E. 14.

PYRAMID

BOXES

For the Chemist, Druggist and Sundriesman.

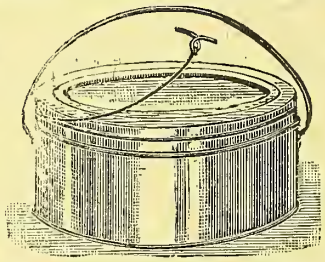
Send your Sizes or Samples, and we will quote you by return. No order too small. No order too large. We *KNOW* your wants and will fit you.

J. DAVIDSON,

98 Shepherdess Walk, City Road, London, N.1.

Telephone: North 3747.

The Northern Tin Canister Works,



Patent Air Tight Slip-lid Tin for Export.

6 Mersey Street,

LIVERPOOL.

Manufacturers for the Chemical Trade.

TIGHT SEAMING & VARNISH BOTTLES A SPECIALITY.

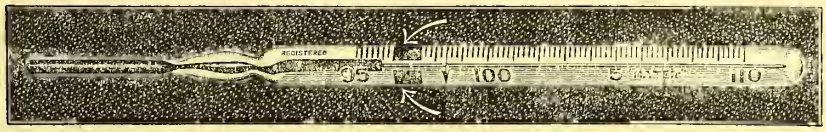
Prompt Deliveries Assured.

PERKEN'S

GUARANTEED CLINICAL THERMOMETERS

The "MATER" Improved Magnifying-front Clinical Thermometer.

REGISTERED No. 553038



MERCURY COLUMN SEEN AT A GLANCE.
Made in Three Rapidities: Ordinary, 1 Minute & ½ Minute.

X **The "MATER" Clinical Thermometer offers the Pharmacist the largest margin of Profit as Retail Prices are fixed by the** X

P.A.T.A.

FULL CATALOGUE of CLINICAL (39 different types) and of THERMOMETERS for all purposes sent FREE on application.

PERKEN, SON & CO., Ltd., 94 HATTON GARDEN, LONDON, E.C.1.

Established 1852.
Telephone: 724 Holborn.

Contractors to H.M. Government.
Telegrams: "Optimus, Smith, London."

SAME DAY SERVICE

FILMS DEVELOPED & PRINTED

POST CARD PRINTING - ENLARGING
COLOURED WORK.

SPEEDIEST SERVICE. FIRST-CLASS WORK

Lowest Trade Terms on Application

THE PROGRESS ART STUDIOS

45-47 CHEETHAM HILL ROAD,
MANCHESTER

Telegrams: "Announce." *Phone: Central 1579*

DEVELOPING and PRINTING

Speed and Satisfaction Guaranteed

Send your order to us and have your work done properly and quickly.

POSTCARD PRINTING AND ENLARGING

Price List on application together with trade card to—

"WHITES" (J. & P. White & Co.) Dept. A.
118 GREAT DUCIE STREET, MANCHESTER.
Phone—4827 Central. Tel. Address—"Studio."

DEVELOPING

AND PRINTING ROLL FILMS.

Join the live wire service, All work returned same day.

PRICE RIGHT—QUALITY UNEQUALLED.

Write for List "J" to-day.

WALLACE HEATON LTD.

CHANGE ALLEY, SHEFFIELD.

To ensure Best Results: FORWARD YOUR

FILMS to FOX.

24 Hours' Service.

Size	Developing per dozen	Printing per dozen Black and White
All sizes up to 3½×2½ inclusive	1/-	2/-
4¼×2¼	1/6	2/6
¼-pl. No. 2 C. Kodak 5½×3½ 5 ×4	1/6	3/-
	2/-	3/6

Printing Postcards, **3/6** dozen
Subject to **33⅓** % trade discount.

FOX FOTO SERVICE
8 Castle St., SHEFFIELD.

Announcement to Retailers.

NADCO DYES are being advertised extensively in important newspapers. This advertising to the public is to be persisted in until Nadco Dyes are known thoroughly, and established as a necessity in the household.

Nadco Dyes are the result of many years' experience in dye making and dyeing, and have been pronounced by eminent experts "the most wonderful dyes in the world."

PROFITS in Nadco Dyes are very generous, and the rapid turnover will build up an ever-growing trade that will prove most gratifying.

Nadco Dyes retail for 1/-. You get 25% on the selling price and if ordered in 1 gross quantities 5% extra.

Order from your wholesaler, or

The British Harold F. Ritchie & Co., Ltd.,

33 Farringdon Road, London, E.C.1

P.A.T.A.

It is suggested

that Nadco be ordered in the *gross assortment*, packed in the Counter Display Case (illustrated below). This case contains a complete line of colours, which can be filled out easily as certain colours are exhausted through sales made. Each

COUNTER DISPLAY CASE

contains the following gross assortment of **Nadco Dyes** in the 20 beautiful Fast Colours.

1	doz.	Pink	½	doz.	Light Blue
½	„	Old Rose	½	„	Old Blue
⅛	„	Scarlet	2¼	„	Navy Blue
1/6	„	Cardinal	2¼	„	Black
⅛	„	Wine	1/6	„	Grey
1/6	„	Sand	½	„	Taupe
1/6	„	Yellow	¼	„	Heliotrope
1/6	„	Orange	½	„	Purple
½	„	Light Brown	½	„	Light Green
¾	„	Dark Brown	1	„	Dark Green

1 COLOUR CARD

NOTE.—The Colour Card should always be kept with the display case, where customers can see it quickly and can consult it freely. The beautiful samples of actual Nadco dyeing go far in making Nadco Sales.

Your Wholesaler can supply Nadco Dyes in the Display Case without extra charge. *Insist upon having your first order packed in this way.*

SCHOLL Advertising Creates Demand.

Since the opening of our National Summer Advertising Campaign we have received almost daily inquiries from Chemists and Druggists regarding our proposition. These dealers intend to link up at once with our wide publicity and obtain thereby the biggest results possible from our efforts.

Dr Scholl's
Foot Comfort Appliances

enable you to relieve and correct by scientific methods based on anatomical principles, the many foot discomforts that people are troubled by.

Write to-day for Illustrated Catalogue.

THE SCHOLL MFG. CO., Ltd., 1-4 Giltspur St., London, E.C. 1

RASPBERRY VINEGAR.

MADE ENTIRELY FROM THE FINEST RASPBERRIES & REFINED SUGAR.

Guaranteed free from synthetic ethers or artificial colouring matter. Sp. Gr. 1.3. Full Flavour.

Conforms strictly with the various requirements of the Food and Drugs Act.

PRICE 1/5 lb. NET.

Carriage Paid on 28-lb. Orders.

28 lb. in Free Wickered Stoneware Bottle, Carriage Paid, for **49/-** net.

BRATBY & HINCHLIFFE, Ltd.

Essence Distillers & Manufacturing Chemists,

SANDFORD ST., ANCOATS, MANCHESTER.

MANICURE SETS

Of great variety, very best Steel Instruments. Cases made from the finest Leather, and elegant style. May be inspected at the Showrooms of

HERTZ & CO., 9 Mincing Lane, E.C.3

Established 1878.

Telegrams: "Freshness London."

Phone: 10607 Central. [1]

PURE ORANGE WINE

A. MILLAR & CO., Ltd., DUBLIN

(VINUM AURANTII B.P.) Prepared in strict accordance with the Formula of the British Pharmacopœia. (Wholesale only.)

Samples from Head Office, Thomas Street, DUBLIN, or London Office, 43 Great Tower Street, LONDON, E.C.3.

WESTMINSTER COLLEGE OF PHARMACY.

WILLS' UNIVERSAL POSTAL SYSTEM

Fee (British Isles) £1-1-0.

For Qualifying, Preliminary and Apothecaries Hall Examination.

Full particulars from The Principals,

190 CLAPHAM RD., S.W. 9.

ELT'S COLLEGE,

34a Golders Way, London, N.W.11.

IDEAL POSTAL COURSES for PRELIM., "HALL" AND MINOR.

Full particulars sent on application.

The BATH and WEST OF ENGLAND College of CHEMISTRY & PHARMACY

Principal—
DAVID J. WILLIAMS, Ph.C., F.C.S., (Silver Medallist).

REVISION COURSE FOR QUALIFYING EXAM.

Commenced early in August.

For particulars apply The Secretary, Bath and West of England College of Pharmacy, 6 Cleveland Place East, Bath.

"CHRISTIAN HERALD"

ONE AGAINST SEVERAL.

To the Advertisement Manager, "Christian Herald."

Dear Sir,—You would perhaps like to know of our experience in advertising **Japlin's Anti-Rheumatic Soap** in the *Christian Herald* with a 3-in. advertisement.

Compared with a small advt. in all Sunday weeklies (excepting three), to our surprise the result from all these was not nearly equal to the one advertisement in the *Christian Herald* at half the cost.

Yours faithfully,
JAPLIN'S ANTI-RHEUMATIC SOAP, LTD.

Over £3,000 for £26·10·0

A Leicester Boot and Shoe Manufacturer writes on January 1, 1921:

Over 6,000 Satisfied Customers from Readers of the "Christian Herald."

"The total business done from our original advertisements in February and March 1920, runs into over £3,000 to date. The original advts. cost £26/10/0."

It pays to advertise in the "Christian Herald."

The circulation is the largest of any religious newspaper in the world, and orders for goods advertised are received from all quarters—from the Shetland Isles to New Zealand.

For Specimen Copy and Rate Card, apply to—

The Advertisement Manager,
6 TUDOR STREET, LONDON, E.C.4.

PRISMATIC BINOCULAR FIELD & MARINE GLASSES

We have the largest wholesale stock in the Midlands, × 8, 10, and 12, and REQUIRE AGENTS in every town. Excellent clear stereo vision at 20 miles.

Communicate with us at once and we can introduce you to an excellent profit-making line.

Very low prices before the new duty of 33⅓ % is imposed.

Write, ARTHUR E. SAYER & Co., Sherlock St., BIRMINGHAM.

MANY SUCCESSES IN THE RECENT EXAMINATIONS!

Your Opportunity to

QUALIFY IN OPTICS

Expert Tuition by Correspondence for the SIGHT-TESTING DIPLOMAS of the Worshipful Company of Spectacle Makers (F.S.M.C.) *or the British Optical Association* (D.B.O.A.)

WRITE FOR FULL PARTICULARS.

C. A. SCURR, M.P.S., F.S.M.C., F.I.O., etc., 64 High Street, BARNET.

Turn Sunshine into Money.

Brilliant Days and Greater Leisure have been responsible for a quickened interest in all matters photographic.

Alongside the Boom in Sports, there is greater activity on the part of the Amateur Photographer, particularly the man who handles his own developing and printing, and who looks to you for supplies.

Are you reaping the utmost from this tendency in your own neighbourhood?

Are photographic supplies figuring prominently in your window and counter displays?

Above all, are you satisfied that the materials you are supplying are thoroughly reliable?

Does your stock include "RAJAR" **guaranteed** papers and films?

The wide range of possibilities which the excellence of "RAJAR" goods opens to the amateurs, should be generally realised. Years of patient research coupled with wide business experience have brought "RAJAR" goods right into the front rank. Sales have increased with phenomenal rapidity and mainly because customers **are satisfied** with "RAJAR" Supplies.

Behind every packet bearing a "RAJAR" Label is the definite guarantee of the makers, there is no room for dissatisfied purchasers.

If you have no "RAJAR" stock in hand at present, get in touch at once.

RAJAR *Company,*
Manufacturers of
FILMS, PLATES & PAPERS
10 MOBBERLEY, in CHESHIRE.

HAVE YOU READ
The Gentle Art of Photography
ORDER THROUGH YOUR DEALERS OR THE BOOK STALLS

PHOSFERINE

The wholesale price of PHOSFERINE is as follows:

1/3	**Size**	....	....	**12/-**	**doz.**	**Net**
3/-	„	....	....	**30/-**	„	„
5/-	„	....	....	**48/6**	„	„
12/-	„	....	....	**114/-**	„	„

The retail prices of PHOSFERINE and all our other Proprietary Medicines are now fixed at the face value, viz.

1/3, 3/-, 5/-, and 12/-

SPECIAL WINDOW DISPLAY OFFER.

Against the conditional £5 worth of PHOSFERINE being taken, a bonus of 10/6 will be allowed for a Phosferine Window Display of not less than two weeks.

EXAMPLE:

		COST	*SELLS FOR*
3½ dozen **1/3** size at **12/-** net	...	£2 2 0	£2 12 6
2 dozen **3/-** size at **30/-** net	...	£3 0 0	£3 12 0
		£5 2 0	
Less **10/6** for Window Show	...	10 6	
		£4 11 6	£6 4 6

GIVING YOU A PROFIT OF OVER **35** %, OR **£1 13 0.**

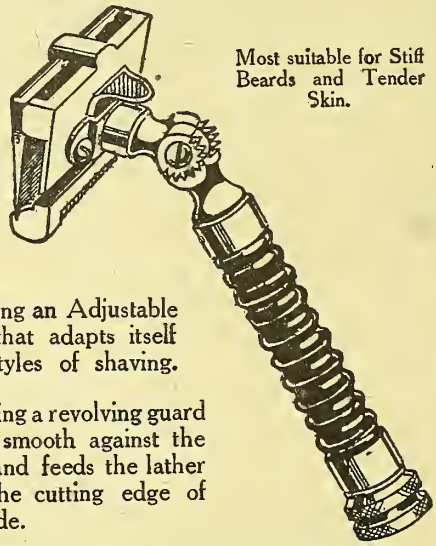
ASHTON & PARSONS, LTD.

LA BELLE SAUVAGE, LUDGATE HILL, LONDON, E.C.4

THE WILKINSON SWORD CO. LTD.,

of 53 PALL MALL, LONDON, *are the only manufacturers of the*

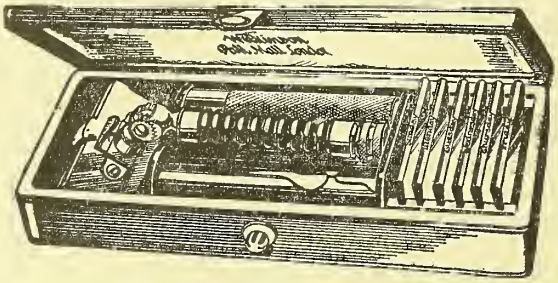
WILKINSON NEW MODEL SAFETY SHAVER.



Most suitable for Stiff Beards and Tender Skin.

In neat Leather Case with SEVEN real lasting SOLID BLADES.

THERE'S A POWER BEHIND EACH EDGE.



Possessing an Adjustable Head that adapts itself to all styles of shaving.

Possessing a revolving guard that is smooth against the cheek and feeds the lather on to the cutting edge of the blade.

THE MOST UP-TO-DATE SHAVER IN THE WORLD.

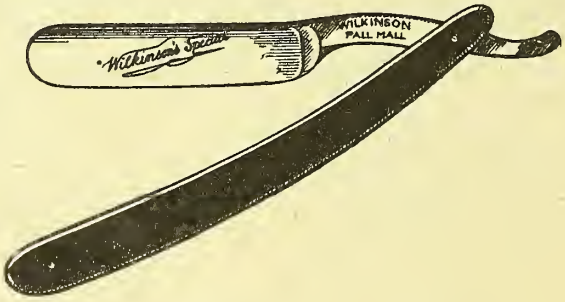
WILKINSON'S CELEBRATED SWORD-STEEL RAZORS

SWORD STICKS

IN LARGE VARIETY.

Are famous throughout the world, and are renowned for their SUPERFINE EDGE.

"SPECIAL." "W. & CROWN." "LANCE."



WRITE FOR CATALOGUE NOW.

WILKINSON'S DOUBLE ACTION STROPPING MACHINE adds keenness and life to your RAZOR.

All Orders and Inquiries to—

THE WILKINSON CUTLERY Co., Ltd.,

"Tudor House," Rathbone Place, Oxford Street, London.

THE CHEMIST AND DRUGGIST SUPPLEMENT

42 CANNON ST.
LONDON E.C.4

JUNE 18, 1921

This Supplement is inserted in every copy of The Chemist & Druggist.

THE SUPPLY OF SUPPLEMENTS.

The clerical work in connection with the posting of spare copies of the Coloured Supplement week by week has increased to such an extent that we have been compelled to reorganise our system of distribution. Our readers will please note, therefore, that, in future, instructions can be accepted for not more than six successive issues of the Supplement at a time, and that in every case

ADDRESSED WRAPPERS STAMPED ONE PENNY

must be sent. Loose stamps will not be accepted.

EARLIER CLOSING FOR PRESS.

Will advertisers please note that until further notice it will be necessary that Advertisements intended for the Supplement must reach us not later than the FIRST POST THURSDAY MORNING.

CHEMISTS' TRANSFERS.

Messrs. ORRIDGE & CO., 56 Ludgate Hill, E.C.

Telephone No: City 2283.

May be consulted at their Offices on matters of SALE, PURCHASE, and VALUATION.

1.—WEST-END PHARMACY.—For disposal, various utensils, comprising measures, pill- and cachet-machines, various scales, mortars, and other implements of Pharmacy; must be sold at once.

2.—LONDON, W.—Ready-money Retail, capitally situate in shopping thoroughfare; returns, present rate, between £30 and £40 per week; *gross profit one-third*; rent £35; price £1,200.

3.—LONDON (Northern Suburb).—Old-established Business; returns last year £3,250; *net profit* £800; small residence; rent £45; 32 years' lease; practically no opposition; price about £1,600.

4.—HOME COUNTY.—Good-class Retail and Dispensing Business, situate in a favourite residential town, within easy distance of London; returns, under management, about £3,600 per annum, at good prices; well-appointed shop, fully stocked; the Business offers scope for extension under personal supervision.

5.—LONDON, W. (Suburban).—Cash Retail Business, with N.H.I. Dispensing; gross receipts last year £3,081, at fair prices; rent £60; sub-let 25s. weekly; 20 years' lease; no immediate opposition; price £1,550.

6.—LONDON, E.—General Retail and Prescribing Business, with excellent opening for N.H.I. Dispensing; returns, last year, £2,000; *net profit quite* 25%; large double-fronted shop, well fitted and stocked; comfortable residence, bathroom, garden, garage; vendor wishes to dispose of property, for which he requires £2,000; price for business and property, £2,500; mortgage could no doubt be raised.

7.—MIDLANDS.—Ready-money Business, including Wine Licence; returns about £1,500; *net profit* 33⅓%; attractive shop, fitted in mahogany; small residence; rent £40; held on lease, with option of renewal; price £600.

8.—NORTH-WEST COAST.—Cash Retail Business; established upwards of 50 years; returns last year between £3,000 and £4,000; *gross profit* £1,300; well-fitted shop, fully stocked; seven-roomed house; private entrance; rent £40; held on lease; price £2,150.

9.—WEST OF ENGLAND.—Old-established Business, capitally situated; returns exceed £2,000; *net profit* 25%; attractive, well-fitted shop, fully stocked; further details on application.

10.—NORTH WALES.—Old-established Business, well situate in good market town; returns, present rate, about £2,000 per annum; comfortable residence; nice garden; healthy district; price £1,000 cash.

11.—ESSEX (Coast).—Old-established Business, Retail and Dispensing; returns between £2,000 and £2,500, increasing; *profits good*; there is a residence, with bathroom, garden; held on lease.

12.—SOUTH MIDLANDS.—Unopposed Business; very old established; returns £1,200; scope for development; *profits one-third*; comfortable residence; vendor's own property; the whole is for disposal.

13.—LANCASHIRE.—Cash Retail Business; best position in marketing thoroughfare; steadily increasing; returns £2,000; excellent opening to extend business under qualified management; price for business £850, and for property a further £850, if required.

14.—MONMOUTHSHIRE.—For immediate disposal, a Shop and Residence, which has been held by a Chemist for 25 years, now deceased; further particulars will be furnished on application.

VALUATIONS FOR STOCKTAKING.

Messrs. O. & Co. desire to emphasize the necessity of a periodical Statement of Account, by which means alone **Profit, the value of Business, &c.,** can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often omitted and eventually becomes the cause of confusion and loss.

Messrs. O. & Co. are prepared to undertake these essential duties and make **Special Terms** for such services.

ORRIDGE & CO., 56 LUDGATE HILL, LONDON, E.C.

BERDOE & FISH

VALUERS & TRANSFER AGENTS

35 Jewry Street, Fenchurch Street, E.C.3.

Telephone: 1809 CENTRAL.

No Charge to Purchasers.

1. LONDON (WEST END).—Old-established, good-class business, in splendid position; no photo or optics. Returns £2,000, can easily be doubled; low rent, on long valuable lease; modern-fronted shop, house attached. Applicants with about £1,400 will find this a most desirable investment.

2. LONDON, N.—Light ready-money suburban retail, well-established. Returns £2,700, increasing; splendid stock; low rent, good house, long lease; stock and fixtures worth over £1,300; price £1,800 or near offer.

3. LONDON, S.W.—Good middle-class cash retail, entirely under manager. Returns £30 to £35 weekly, scope for increase; good position; low rent; price for quick sale £750; worth attention.

4. MIDDLESEX (10 miles out).—Genuine light cash retail, in central position. Returns £25 a week; easily worked; small comfortable house, low rent; price £750.

ESTABLISHED 1870.

The Association of Manufacturing Chemists

— LIMITED —

Head Offices—26/28 Kimberley House, Holborn Viaduct, London, E.C.1

(and at 2 Bixteth Street, Liverpool).

PARKIN S. BOOTH, *Accountant & Valuer.*

PHONE: CITY 6942.

Stocktaking and Valuations for all purposes undertaken upon Reasonable Terms.

1.—NEAR LUDGATE CIRCUS.—Good-class Cash Business; returns £57 per week, at excellent profits; rent £80 per annum; established 30 years, and in present hands 6 years; lock-up-shop; good reasons for disposal; part purchase price can remain.

2.—EPSOM DISTRICT.—Good-class Family Retail Dispensing and Photo Business; newly fitted and decorated shop; returns £1,300 per annum, with plenty of scope for increase.

3.—A small Manufacturing Chemists' Business for Sale, situate near London; excellent factory accommodation; held on 20 years' lease at a very low rental. Fullest particulars on application.

4.—YORK.—Retail, General, and Dispensing Business in populous district, with excellent house accommodation; low rent; returns between £30 and £40 per week, mainly from sale of drugs; price, including property, £2,500, or near offer.

Having on our registers numerous cash buyers for businesses from £500 to £2,000 or more, we should be glad to hear from intending vendors, with particulars of the Business for disposal. We can guarantee a prompt and satisfactory sale, and make no charge whatever unless purchaser is introduced by us.

BRETT & CO.

All Valuations have the personal attention of F. J. Brett, M.P.S.

Transfer Agents and Valuers,

73 LAUREL ROAD, LEICESTER.

Telephone: 1934.

£1,800 RETURNS; MIDLANDS.—Good large shop and 10-roomed house; Light Cash Retail, capable of great increase; vendor retiring abroad; fine opening for Dentistry, Optics, or Photo; £1,200 or near offer for quick sale.

£2,000 (at the rate of this year); NORTH WALES.—Desirable locality; good-class Retail, with several well-established Proprietaries; good house and large garden; price £1,100.

£1,240 RETURNS; MIDDLESEX.—Well-fitted shop, good house; net profit £500; good middle-class Retail; no N.H.I.; ill-health sole cause of sale; price £1,000.

PARSON C. BAKER, Ph.C., M.P.S., 4 Cyprus Rd., N.3. Tel.: 941 Finchley

WM. ROOKE ROBERTS, M.P.S., F.S.M.C.,

174 Victoria Street, S.W. 1. Tel.: Victoria 27.

Valuers for Purchase, Sale, Probate, Income Tax, Balance Sheet, &c.

Recommended by The British Drug Houses, Ltd., Messrs. Meggeson, Ltd., Messrs. Barclay & Sons, Ltd., and many other leading Wholesale Houses, Valuers to the Association of Manufacturing Chemists.

ERNEST J. GEORGE

EXPERT CHEMISTS' VALUER, STOCK-TAKER AND TRANSFER AGENT

OPEN FOR BOOKINGS FROM JULY ONWARD

PERSONAL ATTENDANCE AND INTELLIGENT SERVICE

VALUATIONS AND ADJUSTMENT OF ACCOUNTS *for* PROBATE *or* TRANSFER

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AGENCIES.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

AGENTS required for Canada and certain parts of the Continent and Central and South America. Apply 130/2, Office of this Paper.

FIRM of Manufacturing Chemists require a smart Agent, capable of introducing Proprietary Preparations to Medical Men; state age, experience, and salary required; if applicant already calls on Doctors, and would consider side-lines, state commission required. 42/43, Office of this Paper.

MANUFACTURERS.—Do you wish to place your products on the Canadian market? Two live Salesmen, with a good connection, are open to take any reliable Drug-store line on a commission or Agency basis. Correspondence solicited through 100/37, Office of this Paper.

REPRESENTATIVE, with good connection all Ireland, open to take Agencies for good-class Rubber Goods, Perfumes, and Fancies; could give interview at Chemists' Exhibition. Apply 127/24, Office of this Paper.

SOUND Agencies wanted; any line connected with Pharmacy; can work all Scotland; thorough knowledge Retail; efficient, tactful Salesman; age 28. Send full particulars to "H." (129/3), Office of this Paper.

SALES BY AUCTION.

MARSHALL MILLS, WATER LANE, LEEDS.
Re Young & Barraclough Limited.
(In Liquidation.)

OLIVER, APPLETON & KITCHEN, instructed by William Smales, Esq., C.A., and Rupert R. Parker, Esq. (Joint Liquidators of the Company), will Sell by Auction—

On MONDAY, JUNE 20th, at 11 o'clock, the Wholesale Chemists' and Druggists', Grocers', and Bakers' Sundriesmen's Working Plant, Office Furniture, 30-cwt. Belsize Motor Lorry, and effects;

On TUESDAY, JUNE 21st, at 11 o'clock, the Stock-in-Trade of Dry Goods, Vaseline, Glycerine, Furniture Cream, Balsams, Epsom Salts, Saccharine, Oils, Acids, Drugs, Essences, 400 gross Bottles, Phials, and Jars, Corks, Schives, 9,000 paper Bags, 40 doz. balls Twine.

Catalogues (6d. each) on application to the Auctioneers, 7 Lands Lane, Leeds.

PARTNERSHIPS.

PERFUMERY and Toilet Preparations.—Advertiser, with a Wholesale connection, would like to hear from someone with a small capital to help him extend the above; this is a genuine opportunity for anyone interested in this work. P.C.B. 2/9, Office of this Paper.

FOR SALE.

CONTENTS of Doctor's Surgery, S.W. London.—Set of Bottles (270), sizes various, stoppered, solids and liquids; Dispensing Counter, length 9 feet, comprising desk, 10 drawers, and cupboard; Wall Fixture, length 15 ft., height 7 ft., comprising drawers, bottle lockers, and shelving; Dispensing Balance; leaded Sink; what offers? Apply 128/33, Office of this Paper.

EUREKA hand Tablet Machine; new, not used; cost £18. Offers to P.C.B. 2/8, Office of this Paper.

NUCLEUS of Dental Practice for Sale, in N. London district, including all surgical and mechanical appliances; receipts for 1920 £238; opposition practically nil; splendid opening. Apply 127/14, Office of this Paper.

BUSINESSES WANTED.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

SUSSEX.—Small Business wanted, country or seaside; Partnership or Managership, with view to succession, entertained; replies treated confidentially. Apply "M.P.S." (128/32), Office of this Paper.

ADVERTISER wants to purchase a larger Business, good Mixed, doing between £70 and £100 per week; Midlands preferred, but not essential; will exchange present Business as part purchase if desired; must bear the strictest investigation. Please send fullest particulars, which will be treated in strictest confidence, "Confidential" (128/23), Office of this Paper.

ADVERTISER, with £1,800 cash, desires good Business in South of England; partnership or managership with view to succession entertained; banker's and personal references available. Apply Burton, Grosvenor Pharmacy, Bath.

ADVERTISER desires to negotiate for the purchase of a sound Business in nice country or seaside town, West or South-West; could pay £750 in cash, and a similar amount within a year. Full particulars to "Alpha" (130/11), Office of this Paper.

WANTED, bona-fide Business, now or shortly; present returns near £2,000; living accommodation attached; healthy district, preferably North; management, with view to succession, entertained; please send full particulars, opposition, net profit, district, etc., which will be strictly confidential; must stand full investigation; genuine offer; cash available. Write 128/25, Office of this Paper.

WANTED in near future, about September, a good-class Business, in country market town preferred, showing about £1,000 a year net profit; living accommodation away from business preferred; partnership entertained, with view to succession later; cash available. Replies, treated with strictest confidence, to "Pharmacist" (129/36), Office of this Paper.

BUSINESSES FOR DISPOSAL.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

SHIRLEY BROS.
(Proprietors, Chemists' Manufacturing Co., Ltd.).

THE Receiver for the Debenture Holders offers for Sale this Business, which has been established for forty years as

PHARMACEUTICAL MANUFACTURING CHEMISTS,

preparations including Ointments, Pills, Soothers, etc., together with a general Wholesale Sundries trade in Packed Goods and Toilet Preparations under the well-known trade-mark WHITECROSS BRAND.

The premises are fully equipped with laboratories, factory, warehouse, offices, etc., and there is a valuable lease and goodwill.

Apply to FRANK H. FAREY, 46 BASINGHALL STREET, E.C. 2.

LONDON, S.E.—Light Retail and Prescribing Business, Photography and N.H.I.; average takings £1,500; seven-roomed house and small garden; rent £45; 3 rooms let off at £42; no immediate opposition; price £850 for cash. Further particulars on application to 130/29, Office of this Paper.

NORFOLK.—Retail and Agricultural Business in large village; returns about £1,000; nearest opposition five miles; good scope for Dental and Optical; good house, small garden; rent £25; suit registered or unregistered; energetic man could double. Apply 114/4, Office of this Paper.

NORTH WALES.—Good sound Business, agricultural centre and holiday resort; double-fronted shop, with commodious house (private entrance), with large garden, warehouse, and garage attached; average turnover last 2 years £4,830; low rent and taxes. Apply "Valuer," Evans Sons Lescher & Webb Ltd., Hanover Street, Liverpool.

SOUTH COAST.—Chemist's Business, Cash Retail; well stocked; established over 50 years in shopping part, main road of prosperous Naval and Military town; well-fitted shop; modern front; rent £50; long lease; genuine. Further details on application to 126/38, Office of this Paper.

SOUTH WALES.—A well-established and popular Mixed Chemists' Business, with Optics, in Agricultural district, not affected by industrial strikes; returns last year £2,650, still increasing; exceptional profits; easily worked; seven-roomed house; lease; price £1,900. Apply 121/34, Office of this Paper.

SOUTH-WEST.—Light Retail, Photo, and Agricultural Business, with good Optical connection, with living accommodation; returns nearly £3,000; low rent; lease; easily worked; opening for Dental work; an opportunity for inspection to gentleman willing to give temporary holiday assistance. "F.S.M.C." (130/17), Office of this Paper.

FOR Sale, or Partnership entertained; returns £5,000-£6,000 per annum; London suburb. "Pharmacist," 22 Castlewood Road, Stoke Newington, N.

GENUINE old-established City Business, West of England; excellent profits; good living accommodation; long lease; for quick transfer, accept £2,100; good reason for disposal; unique opportunity; particulars in return for bankers' refereuec. Apply 129/37, Office of this Paper.

WHOLESALE.—A small Wholesale Business for Sale, supplying Packed Lines to Chemists and Hairdressers; can be greatly extended; good office, packing, and manufacturing premises; part let off, leaving net rent of only £30; long and valuable lease; price £900, which is less than valuation. 130/3, Office of this Paper.

WHOLESALE Sundries Manufacturing Business for Disposal; excellent connection Midlands; established over 30 years; gradually increasing turnover; high percentage profits; thoroughly sound concern; easily managed by one person; low working costs; over month's orders on books; price £2,200. Apply 130/4, Office of this Paper. Usual references required.

We desire particularly to draw the attention of Colonial and Foreign Subscribers to the fact that in cases where they require partners, agents or assistants, or wish to sell their businesses, an Advertisement in this Supplement, placed in every copy of "The Chemist and Druggist," should be the readiest means of helping them to attain their object. The tariff for such announcements is given under the appropriate headings in the Supplement. Instructions and remittances can be sent to us direct or through the advertisers' correspondents in this country.

SITUATIONS OPEN.

RETAIL.

6s. for 40 words or less; 6d. for every additional 10 words or less prepaid.

The Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

CARDIFF.—Experienced qualified Manager required for high-class Retail, Dispensing, and Photographic Business. Apply, with full particulars of experience, photo, and salary required, to Messrs. Gilling & Goodfellow, High Street Arcade Chambers, Cardiff.

CHESHIRE.—Wanted, Junior or unqualified Assistant; no Sunday duty; easy hours; state age, salary required (outdoors), and full particulars of experience, with two references. Address 128/36, Office of this Paper.

GUERNSEY.—Qualified; permanency; outdoors. Apply, stating experience, salary, etc., Davies, Chemist.

LIVERPOOL.—Qualified Manager; energetic, reliable, and up-to-date; knowledge of Photography; must have initiative; also Assistant, qualified; good all-round man required; Dispensing, Counter, and Photography; must be capable of taking charge when necessary. Apply, stating usual particulars, 128/34, Office of this Paper.

LIVERPOOL.—Experienced Assistant, male, required for a high-class Retail and Dispensing Business; unqualified, and not above 35 years of age; must possess recent experience; state full particulars and salary required. Apply 130/18, Office of this Paper.

LONDON.—Branch Manager, qualified, with good all-round experience and a knowledge of Photography; must be well recommended. Apply, with full particulars, stating age, salary expected, etc., to 146 Wandsworth Bridge Road, Fulham, S.W. 6.

LONDON, N.W.—Experienced Assistant, chiefly for Dispensing; lady or gentleman; qualified preferred; Hall qualification sufficient; highest references essential. Usual full particulars, stating salary (by post in first instance), with photo, if possible, Brickell & Jones, M.P.S., F.S.M.C., 295 High Road, Brondesbury, N.W. 6.

LONDON, N.W.—Wanted, a young lady Assistant, experienced and reliable Dispenser, chiefly N.H.I.; must be a good Counter Assistant, with knowledge of Photographic trade. Apply, giving age, experience, and salary expected, to 129/22, Office of this Paper.

LONDON, S.W.—Wanted, shortly, good all-round, qualified, gentlemanly Assistant, accustomed to West-End trade, with unexceptionable references; must be good Dispenser, Salesman, and Window-dresser; knowledge of Photography preferred. Reply, stating experience and salary required, to "Chemicus" (130/31), Office of this Paper.

LONDON, S.W.—Assistant (outdoors), in good-class business, chiefly for Photographic side; no Sunday duty; please give full particulars in first letter. "Statim" (131/1), Office of this Paper.

MALVERN.—Assistant, unqualified; accustomed to good-class Retail and Dispensing. Please give full particulars as to previous experience, salary required (outdoors), etc., to A. Mander, Belle Vue Pharmacy, Malvern.

S.W.—MANAGER, must be thoroughly capable and used to quick middle-class Cash Business; Photography an advantage; an energetic and intelligent man with good record essential. Apply Jackson, 781, Fulham Road, S.W. 6.

TORQUAY.—Unqualified Assistant; really thorough knowledge Photographic dealing essential; Window-dressing; permanency. Full particulars, experience, salary, photo, to Bathe, 24 Fleet Street, Torquay.

WEST KILBURN, N.W.—Competent Assistant for N.H.I. and Retail (no ladies). Robert R. Pratt, 94 Canterbury Road, Kilburn, N.W. 6. Near Queen's Park Tube Station (Bakerloo).

A THOROUGHLY capable, gentlemanly Assistant wanted for North London, for about a year; pleasant Counterman, and thorough knowledge of Photography essential; Dispensing. Give age, salary, and usual particulars in first letter to 129/12, Office of this Paper.

ASSISTANT, 25-30, of gentlemanly appearance and address; competent Dispenser and tactful Salesman; practical Photographic knowledge essential; must be conversant with modern and progressive business methods. State full particulars of experience, when disengaged, remuneration expected, and enclose photo to "Home County" (128/15), Office of this Paper.

ASSISTANT, about 24 years old, wanted in Midlands for two weeks; must have had good experience; please give full particulars in first letter. Apply 130/34, Office of this Paper.

ASSISTANT required for Photographic Department at East Coast seaside for 6 or 8 weeks; must be well up in printing. Apply 130/16, Office of this Paper.

CLARKE'S, Chemists, 25 High Street, Newport, require capable and responsible Assistant, accustomed to quick cash business and good Salesmanship; must have thorough knowledge of Photography; good permanency to a progressive man. Apply with full particulars and salary required.

DISPENSER wanted for three weeks, commencing July 25th. Apply Drs. C. S. & K., 124 Stroud Green Road, N. 4.

ENERGETIC unqualified Male Assistant (outdoors); hours 8.3 to 7, Wednesday 1. Saturday 9; no extra duty; applicant must be steady, industrious, and good Counterman. State full particulars to R. Scrafton, Chemist, 1 High Street, Wisbech, Camb.

JUNIOR Assistant (either sex) wanted at once; must be good at Counter and have had Dispensing experience. Apply, stating age, references, and salary required, A. W. Hanson, 2 High Street, Sidcup.

JUNIOR Assistant (male), with good Dispensing experience Wanted; must be quick and thoroughly competent. Give full particulars of experience and mention age and salary required (outdoors). Braddock & Bagshaw, Ltd., 37 Yorkshire Street, Oldham.

LADY Assistant (at once) for Dispensing, Counter, and Stock must be reliable, accurate, and trustworthy. Please apply giving full particulars as to age, salary required, and references, enclosing photo if interview impossible, to Gibbs, Chemist, Berkhamsted.

LOCUM wanted, to take sole charge, last week in July and the first in August, or first two in August. Please state terms and give references, Robinson, 272 Wigan Road, Bry Lancashire.

PART-TIME, qualified Assistant wanted, three evenings per week, for N. London suburb. Apply, personally or by letter, to Cuff, 453 Caledonian Road, N. 7.

QUALIFIED Assistant wanted for a first-class West End Pharmacy; must be a good Counterman and well up in the business; permanency and improving position. Apply "C. B. C." (15/51), Office of this Paper.

QUALIFIED Manager wanted for busy Family Retail business must be thoroughly reliable man, with undeniable reference State full particulars and salary required (live out) to Harriso 147 Mason's Hill, Bromley.

QUALIFIED Assistant wanted for the latter part of July August, and September; possible permanency; must be keen and conscientious worker, with some knowledge of Prescribing. Sangster, Chemist, Slough.

QUALIFIED Assistant, to take charge during holidays; temporary berth. Apply, by letter only, Lewis & Burrows, Ltd 146 Holborn Bars, E.C.

UNQUALIFIED Assistant wanted, age 25 to 30, for small middle-class business (North of England); must be a smart Counterman, able to assist with N.H.I. work and stock; state full particulars of salary, age, experience, and when at libert Apply 128/21, Office of this Paper.

UNQUALIFIED Junior Assistant, age about 22. Call or send photo and usual particulars, T. H. Wilson, Pharmacist 741 Barking Road, E.

WANTED (June 27), capable Assistant; no Sunday duty Apply, stating salary, Graham, 261 High Street Nort Manor Park, E. 12.

WANTED, Second Assistant for brisk country business market town, near Oxford; age 25 to 35; qualified married; with N.H.I. experience; permanency. Give full particulars and state salary required to "Berks" (129/26), Office of this Paper.

WANTED, Junior Assistant (unqualified); Dispensing and General Retail; permanency. Apply, with references, stating age, height experience, and salary required (outdoors) to Mil Coward, Chemist, 117 High Street, Lowestoft.

WANTED, qualified Manager; healthy country Store, near Leeds; abstainer and Churchman preferred. Inquire, 129/1 Office of this Paper.

YOUNG qualified Assistant wanted for July and August (outdoors); light duties; state salary required, references, enclose photo (to be returned). H. J. Aubrey, 25 The Cross, Worcester.

WHOLESALE.

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

LONDON Manufacturer requires capable Representatives, calling on Chemists, Hairdressers, etc., to sell on liberal commission terms a highly attractive Proprietary; to cover all parts of the British Isles. State full particulars and ground covered to P.C.B. 2/29, Office of this Paper.

LABORATORY.—Qualified Chemist required by a firm of Wholesale Chemists in the North of England; must be capable of taking entire control of the manufacture of Galenicals. State experience and salary required to 128/22, Office of this Paper.

PILL and Tablet Maker for provincial house, capable of taking charge; permanency; state experience, age, salary required, and references. Apply 21/25L, Office of this Paper.

TRAVELLER, calling on Chemists and Stores, required for useful and remunerative side-line, on commission. Apply P.C.B. 2/6, Office of this Paper.

WANTED, Traveller, calling on country Chemists; one going all over the country preferred, to carry as extra old-established line on commission basis. In confidence to "Ubique" (P.C.B. 1/32), Office of this Paper.

SITUATIONS OPEN.

(Colonial, Indian and Foreign.)

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

FAR EAST.—Wanted, Representative, travel India, Burma, and East Indies, for Manufacturing Chemists; knowledge of Drugs important, knowledge of country essential; business experience indispensable. Apply 42/42, Office of this Paper.

PARIS.—Wanted, English Assistant, with Minor; smart Salesman, careful Dispenser, of good address, with fair knowledge of French. Write, with photo (will be returned), to Simonin, 356 Rue St. Honoré, Paris.

PARIS.—Assistant; knowledge of French and Continental experience; photo, if possible (to be returned), age, height, references, salary (outdoors). Roberts, 5 Rue de la Paix, Paris.

RETURNING PHOTOS, &c.

Advertisers in this section who receive portraits and copies of testimonials from applicants with a stamped addressed envelope for reply are reminded that the undue retention of these often means a hardship to the sender. All personal documents should be returned as promptly as possible after perusal.

SITUATIONS WANTED.

[HOME.]

RETAIL.

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

A.A.A.—LOCUM; disengaged; 27; high-class experience; quick and accurate Dispenser; first-class Salesman. "Alpha," Buckingham House, Finsbury Park, N. 4.

A.A.A.—ASSISTANT; qualified; 27; disengaged; quick and accurate Dispenser; Salesmanship speciality; excellent references. P.C.B. 2/16, Office of this Paper.

A.A.A.—COMPETENT Pharmacist (33); disengaged; good experience, references; any capacity; moderate remuneration. "C.," 14 Alpe Street, Ipswich.

A.A.A.—LOCUM Tenens (27), booked until August 13th. My references are—any leading Wholesale house and numerous Pharmacist clients; terms reasonable; anywhere; West-end, seaside, and country experience. "M.P.S.," 11 Kyrle Road, S.W. 11.

A PHARMACIST, experienced; also Optics, Dentistry, Prescribing, and Agricultural; married, no family. "Pharmacist," 59 Primrose Avenue, Haslington, Crewe.

AN experienced Dispenser (Hall qualification) now booking dates for Locums (Chemists, Doctors, Institutions), or would like permanency; excellent testimonials. "Dispenser," 45 Nimrod Road, Streatham.

AS Senior Assistant; disengaged; Locum or permanency; good Salesman and Dispenser; highest references (town only). "A.," 11 James Street, Paddington.

ASSISTANT (unqualified) desires part- or whole-time berth; Counter and Dispensing. V. R., 30 Gore Road, Hackney, E. 9.

ASSISTANT (22), unqualified, six years' experience, now disengaged; good Dispenser and Salesman; knowledge of Photography; home or abroad. Apply 125/32, Office of this Paper.

ASSISTANT, unqualified; 28; energetic and reliable; 9 years' Dispensing, Photographic, and Counter experience; excellent references; London preferred. Apply 128/27, Office of this Paper.

ASSISTANT, 29, unqualified, 10 years' good experience Dispensing and Counter, desires locum or temporary post. "Locum," c/o W. C. Bennett, M.P.S., 37 Fore Street, Totnes, S. Devon.

ASSISTANT; unqualified; 5½ years' experience good-class Retail and Dispensing; age 25; tall; Lancs preferred; at liberty about July 15th. Apply 130/6, Office of this Paper.

ASSISTANT, 30, unqualified, single, energetic, willing, and honest, desires permanency; excellent references. Cockerill, 59 Hardars Road, Peckham, S.E. 15.

ASSISTANT; unqualified; single; Dispensing, Counter, Window-dressing, and Photographic; good references; moderate salary. "Tidea" (130/37), Office of this Paper.

ASSISTANT, Branch, Locum; 25 years' experience Dispensing, Prescribing, Dentistry, Photography; country preferred (non-essential); normal salary; disengaged. J. Munslow, Evesham.

ASSISTANT, unqualified; smart Salesman; 15 years' Stores experience, Drugs, Perfumery, Surgical Sundries, etc. "Aspirin," 37 Brunswick Road, N. 15.

ASSISTANT, age 29, unqualified, desires change; good-class Dispensing, Counter, Photographic, varied London experience; disengaged shortly; good references. "C. H. B.," 63 Ockendon Road, N. 1.

ASSISTANT or Locum, with first-class English and Continental experience; good Dispenser, Prescriber, and Counterman; 42; salary moderate. Apply 130/1, Office of this Paper.

ASSISTANT, unqualified (26), single, good all-round General experience, excellent references, desires post; Derby, Burton, Midlands preferred. Write 129/40, Office of this Paper.

BIRMINGHAM DISTRICT.—Locum engagements now being booked. Note permanent address, "Rhei," 146 Icknield Port Road, Birmingham.

CYRIL SNOW, Pharmacist (30), experienced, would welcome interviews forthcoming Chemists' Exhibition. Write 13 Hollingbury Terrace, Brighton.

DISENGAGED; qualified; æt. 46; wide experience; Manager or Locum; London preferred. "Chemist," 108b Elgin Avenue, W. 9.

DISPENSER, Hospital and private experience, unqualified, requires post shortly; quick, absolutely reliable; any district; salary from £2 10s. per week. Letters only, S., 7 Gauden Road, Clapham, London, S.W. 4.

DISPENSER, Hall (lady) seeks post; two years' experience in Pharmacy. Apply "E. H.," 194 Lower Clapton Road, E. 5.

DISPENSER (26); 11 years' good-class varied experience, also Counter and Photography. Please state full particulars, hours, etc. (provincial), Haigh, 25 Stafford Parade, Halifax.

DISPENSER (Hall), lady, desires post with Doctor; good reference, keen, energetic. "M. V.," Purley Cottage, Todds Green, Stevenage.

EVENING work required by experienced Dispenser and Bacteriological Laboratory Assistant, also efficient Accountant; all evenings free. Apply to Bull, 57 Glenwood Road, Catford Hill, S.E. 6.

EXPERIENCED Dispenser, lady (Hall); Hospital and Surgery; splendid testimonials; N. or N.W. preferred, or near London. 129/30, Office of this Paper.

EX-SOLDIER (32) desires situation; Light Porter and Photographic work. "R. H. S.," 6 Malvern Street, Burton-on-Trent.

IMMEDIATELY.—Locum Relief; any period; town, country; thoroughly competent, capable, experienced; industrious worker. "Reliable," 239 Camberwell New Road, S.E. 5.

LADY Dispenser (Hall qualification), 4 years' experience, requires post with Doctor, Chemist, or Institution. Write "C. H." (125/33), Office of this Paper.

LADY (25), Minor qualification, all-round experience, desires situation in London; salary moderate. Apply 128/14, Office of this Paper.

LADY; 26; smart appearance; Retail Counter, Photographic, Developing, Printing; good references; state salary. King, 46 Havelock Road, Wealdstone.

LADY Dispenser (Hall) seeks post, Chemist or Doctor; 10 years' Retail and Dispensing experience. Apply 130/7, Office of this Paper.

LADY Dispenser, three years' practical experience, requires situation with Chemist, Doctor, or Institution; highly recommended by employer. Apply F., Kenchington, Hawkhurst, Kent.

LOCUM (25), qualified, free from July 16th. Wilson, 57 Larkhall Rise, Clapham, London, S.W.

LOCUM or temporary; qualified; disengaged; elderly, active; Prescriber; experienced; can give special aid to anyone starting new business. B. Griffiths, 6 Newcastle Hill, Bridgend, Glam.

LOCUM; reliable Dispenser; good Manager; highest references; disengaged June 20th; salary £3 10s. and fares. "Coles," "The Pharmacy," 733 Old Kent Road, S.E. 15.

LOCUM, qualified, abstainer, disengaged June 22nd-July 2nd; London or suburbs. S. S., c/o Mr. Foreman, 120 Barrow Road, Streatham Common, S.W.

LOCUM; qualified; S.W. district preferred; not August. "Miraflores," 60 Atherfold Road, S.W. 9.

LOCUM, qualified, having just sold business, open for engagements. P.C.B. 2/17, Office of this Paper.

LOCUM duties required by Chemist (disengaged). "M.P.S." (130/39), Office of this Pnper.

LOCUM, qualified, reliable, disengaged July 6. References to "A.," 70 Fairfield Road, Winchester.

LOCUM or permanent management, in or round London; S.E. or S.W. or Clacton preferred; references of recent work. Apply 129/8, Office of this Paper.

LOCUM, qualified; disengaged June 22, July 15; thoroughly experienced. Barkas, c/o Court, Herne Bny.

LOCUM or permanency; 38; Retail and Dispensing; excellent references; disengaged; abstainer. Turner, 44 Macfarlane Road, Shepherd's Bush, W. 12.

LOCUM, Major qualification; disengaged August 9 to 30 and after September 15. Hanson, 23 Canning Street, Liverpool.

LOCUM or permanent; qualified; City, West-End, and Suburban experience; excellent testimonials; free July 11; moderate terms. "M.," 74 Culverden Road, Balham, S.W. 12.

LOCUM, qualified, now disengaged; exceptionally good all-round experience; London and country; satisfactory references. "Idem," 44 Gresham Road, Brixton, S.W.

M.P.S., F.S.M.C., young, experienced, requires post, shortly, with Chemist, preferably with Optical connection. Apply 130/27, Office of this Paper.

M.P.S., Bradford or Leeds; all-round experience; moderate salary for suitable situation, within easy reach of home. Apply 130/14, Office of this Paper.

MANAGER or Assistant (39); qualified; excellent all-round experience; splendid references; moderate salary; disengaged. Apply 128/320, Office of this Paper.

MANAGER or Locum; experienced, reliable; London, provincial, seaside; satisfactory references. "Pharmacist," 38 Wendover Road, Harlesden, N.W.

PORTER (superior), Cleaning, Messages, Stock, and all-round useful, including Photography; handy with tools. "Cyclist," 37 Ranelagh Road, Pimlico.

QUALIFIED, experienced Pharmacist and Optician, S.M.C., S. and O. methods, single, good managerial experience, desires post. 121/35, Office of this Paper.

QUALIFIED; tall; young; first-class Dispensing experience; will be disengaged shortly; modernte salary. Apply 116/1, Office of this Paper.

QUALIFIED, experienced, elderly man, active and reliable, chiefly for Dispensing, ordinary and Insurnnce, in good-class business; permanent or temporary; in- or out-doors; good references; terms reasonable. P.C.B. 2/18, Office of this Paper.

QUALIFIED (Major), elderly, seeks part-time work in London. Wright, 46 Hardwicke Road, Palmers Green.

QUALIFIED, desires Locum; South preferred; disengaged mid-July. Carmichael, 44 High Street, Lewes.

SMART, experienced Pharmacist Manager requires locum or permanency in town or country; up-to-date in modern business methods; disengaged; married. "Tristan," 26 Fox Hill, S.E. 19.

STUDENT-ASSOCIATE (19½) desires post, September, in University town, preferably Sheffield; four years' experience Dispensing, Counter, Window-dressing; highest references. Apply 127/19, Office of this Paper.

UNQUALIFIED; accustomed to manage; married; age 46. Apply "Rhei," 2 Vincent Crescent, Brampton, Chesterfield.

UNQUALIFIED Assistant; 40; accustomed to quick Retail, Dispensing, and Photography; locum or permanency. "Velox," 190 Canterbury Street, Gillingham, Kent.

YOUNG lady, matriculated, desires Apprenticeship with Dispensing Chemist in London. G. Silkin, 20 Sparstowe Road, Hackney, E. 8.

YOUNG lady, 19, passed Preliminary, desires post as Junior; slight knowledge of Dispensing, desires to gain more; good Counter Hand; quick; Sussex preferred. "Student," 26 Coombe Road, Brighton.

YOUNG lady, 23, desires post as Assistant; 3 years' experience Counter and Dispensing; Thanet or South preferred. Apply 129/38, Office of this Paper.

WHOLESALE.

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